

UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF NORTH CAROLINA
ASHEVILLE DIVISION

STATE OF NORTH CAROLINA, ex)	
rel. Roy Cooper,)	
Attorney General,)	
)	
Plaintiff,)	No. 1:06-CV-20
)	
vs.)	VOLUME 8A
)	PAGES 1809-1953
TENNESSEE VALLEY AUTHORITY,)	
)	
Defendant.)	
)	

TRANSCRIPT OF TRIAL PROCEEDINGS
BEFORE THE HONORABLE LACY H. THORNBURG
UNITED STATES DISTRICT COURT JUDGE
JULY 23rd, 2008

APPEARANCES:

On Behalf of the Plaintiff:

JAMES C. GULICK, Senior Deputy Attorney General
MARC BERNSTEIN, Special Deputy Attorney General
North Carolina Department of Justice
114 West Edenton Street
Raleigh, North Carolina

MICHAEL D. GOODSTEIN, Esquire
ANNE E. LYNCH, Esquire
Resolution Law Group, P.C.
5335 Wisconsin Avenue NW, Suite 360
Washington, DC

On Behalf of the Defendant:

FRANK H. LANCASTER, Senior Attorney
HARRIET A. COOPER, Assistant General Counsel
THOMAS F. FINE, Assistant General Counsel
MARIA V. GILLEN, Assistant General Counsel
Tennessee Valley Authority
400 West Summit Hill Drive
Knoxville, Tennessee

Laura Andersen, RMR, Official Court Reporter

1 W I T N E S S E S

2 DEFENDANT'S WITNESSES:

3 JOHN MYERS:

 Direct Examination by Ms. Gillen 1811

 Cross-examination by Mr. Bernstein 1873

4

5 GORDON PARK:

 Direct Examination by Ms. Gillen 1923

6

* * * * *

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

Laura Andersen, RMR 704-350-7493

E X H I B I T S

PLAINTIFF'S EXHIBITS:

<u>NO.</u>	<u>DESCRIPTION</u>	<u>MARKED</u>	<u>RECEIVED</u>
491	Study		1913
503	TVA historical emissions	1783	1922
505	TVA service area/coal fire plants	1795	1922
507	2008 Report, Clean Smokestack Ace	1917	1922
508	Acid Rain Monitoring article	1788	1922

* * * * *

DEFENDANT'S EXHIBITS:

<u>NO.</u>	<u>DESCRIPTION</u>	<u>MARKED</u>	<u>RECEIVED</u>
1	TVA service area/coal-fire plants		1839
2	TVA service area/coal-fire plants		1839
151	TVA emissions-2005	1859	1872
153	TVA emissions-2006	1864	1872
155	TVA emissions-2007	1866	1872
156	NOx & SO2 emissions	1868	1872
157	Chart-emissions control	1870	1872
158	Chart-power generation	1871	1872
159	Chart-power generation	1872	1872
164	Chart-control technologies	1857	1857
165	Southern Air Principles	1857	1857
166	Southern Air Principles	1857	1857
167	Memorandum of understanding	1844	1850
182	Environmental Policy	1849	1850
184	Title 5 permit-Allen	1938	1940
185	Title 5 permit-Bull Run	1939	1940
186	Title 5 permit-Colbert	1939	1940
187	Title 5 permit-Cumberland	1939	1940
188	Title 5 permit-Gallatin	1939	1940
189	Title 5 permit-Kingston	1940	1940
190	Title 5 permit-John Sevier	1940	1940
191	Title 5 permit-Johnsonville	1940	1940
192	Title 5 permit-Paradise	1940	1940
193	Title 5 permit-Shawnee	1941	1940
194	Title 5 permit-Widows Creek	1941	1940

Laura Andersen, RMR 704-350-7493

1 P R O C E E D I N G S

2 THE COURT: All right. We will now continue our
3 proceedings by beginning the defense. And I recognize
4 either one of you who chooses to proceed.

5 MS. GILLEN: Your Honor, the TVA calls John Myers
6 to the stand.

7 THE COURT: All right.

8 THEREUPON, JOHN MYERS, being first duly sworn, testified as
9 follows during DIRECT EXAMINATION BY MS. GILLEN:

10 MS. GILLEN: Before we start, if I can just ask
11 the Court and the witness and the defense to take out
12 Plaintiff's -- excuse me, to take out TVA's Exhibit Book 9.
13 That will have the exhibits that we will be referring to.

14 THE COURT: All right.

15 MS. GILLEN: Right there on the cart next to you,
16 John.

17 THE WITNESS: All right.

18 Q. (Ms. Gillen) Good morning, Mr. Myers. Could you please
19 state your full name for the Court.

20 A. John Warren Myers.

21 Q. And Mr. Myers, where do you work?

22 A. I work for the Tennessee Valley Authority in
23 Chattanooga, Tennessee.

24 Q. And what position do you hold there?

25 A. I am manager of environmental policy and regulatory

Laura Andersen, RMR 704-350-7493

1 outlook.

2 Q. Could you please describe your education?

3 A. Certainly, I have a Bachelor of Science in Agriculture
4 from the University of Tennessee at Knoxville. I have a
5 Bachelor of Science in Civil Engineering and a Masters of
6 Science in Civil Engineering also from the University of
7 Tennessee.

8 Q. Do you have any professional certifications?

9 A. I do. I'm a Registered Professional Engineer in the
10 State of Tennessee.

11 Q. And did you begin work at -- to work at TVA immediately
12 after graduating from the University of Tennessee?

13 A. No, I did not. I held a number of positions. One of
14 which was at Hensley Schmidt, a regional engineering firm
15 located in Chattanooga, Tennessee.

16 Q. And when did you come to work for Tennessee Valley
17 Authority?

18 A. I started work in late 1993.

19 Q. And what did you do in 1993 at TVA?

20 A. I was a solid waste specialist in the office of our
21 fossil and hydro division.

22 Q. Did you move on from that position?

23 A. Yes, I did. I became Manager of Permitted Programs in
24 the Environmental Affairs Department again, fossil and
25 hydro.

Laura Andersen, RMR 704-350-7493

1 Q. Again, what did that group do?

2 A. What we did there was obtain the operating permits, the
3 environmental permits under the Clean Water Act, Clean Air
4 Act, RCRA, and other programs for the operation of our
5 generating assets, the coal-fired generation fleet and the
6 hydro units.

7 Q. How long were you in that job?

8 A. I was in that job for approximately five years,
9 basically from 1995 to 2000.

10 Q. And then what did you do in 2000?

11 A. In 2000 I came over, I was Air Program Manager in our
12 corporate office in Chattanooga.

13 Q. What was involved in that position?

14 A. Certainly. As Air Program Manager, I lead a team of
15 folks from various business units across TVA, looking at air
16 issues that effect -- that certainly effect us and the
17 region.

18 Q. Did that position have anything to do with regulatory
19 and legislation?

20 A. Yes, it did.

21 Certainly we looked at a lot of the environmental rules
22 that were on the books. And ensured that our operations
23 were in compliance with those. That our permits were in
24 compliance with those requirements.

25 We looked out for regulations and legislative

Laura Andersen, RMR 704-350-7493

1 developments on the horizon that we might have to comply
2 with. And we looked to work with others on broadening
3 those, and see how we could move forward.

4 Q. And you were in that position until recently, right,
5 August, 2007?

6 A. Yes. I was in that position -- right. From about
7 2000 -- to August 2007.

8 Q. And what is your current position?

9 A. Yes. My current position is Manager of Environmental
10 Policy and Regulatory Outlook.

11 I now have under me an air program manager, water
12 program managers, waste program managers, and look at
13 similar legislative and regulatory issues in those fields.

14 Q. And what regulations are you referring to?

15 A. Certainly. As we looked at some of the broad
16 environmental regulations, the Clean Air Act, the Clean
17 Water Act, Resource Conservation and Recovery Act, and a
18 variety of other broad environmental regulations.

19 Q. Does TVA engage in rule making under those acts?

20 A. Yes, we do.

21 Certainly we look at what rules are being drafted. As
22 those rules are being drafted, we engage in notice, and
23 comment a lot of times. We conduct a fair amount of
24 research.

25 We want to make sure that that information is available

Laura Andersen, RMR 704-350-7493

1 to regulatory agencies that are developing these rules. And
2 certainly where TVA's expertise or TVA's opinion on how
3 those rules could be crafted to ensure further progress and
4 be clear about what the requirements are, we certainly
5 engage in notice and comment.

6 Q. And as part of your job, do you communicate with other
7 utilities?

8 A. Yes, we do. Yes, we do, on a variety of issues.

9 Certainly as we have developed, designed and deployed a
10 lot of emission control technologies, we've had
11 conversations with other utilities about what seems to work
12 with us, about what that technology does. How we can show
13 that those technologies meet the permit requirements that
14 are in there. And we have a broad discussion about that,
15 along with other aspects of compliance.

16 Q. Do you share technology developments?

17 A. Yes, we certainly do.

18 We reach out on, you know, what's working, and how
19 we're proceeding. And how that can be meshed with emission
20 reduction programs and future environmental requirements.

21 Q. As part of your job, do you track the performance of
22 other utilities?

23 A. Yes, we do.

24 Q. In what way?

25 A. Certainly we look at where emission reductions are

Laura Andersen, RMR 704-350-7493

1 coming from, as we move down and make further emission
2 reductions. We look to see who's installing what type of
3 equipment. What type of technology are they selecting.
4 What progress are they making. What type of emission
5 reductions are occurring in the region.

6 Q. And are there specific sources that you refer to in
7 order to ascertain that knowledge?

8 A. Yes. We use a variety of sources.

9 Certainly key in a lot of that is EPA's Clean Air
10 Markets Division's web site which has the data base for
11 emission reporting for the Acid Rain Program and several
12 other programs.

13 It's a system where EPA collects the information, and
14 utilities or point sources provide their information to EPA.
15 And that's -- we see that as a very reliable database. So
16 we use that.

17 We also use Department of Energy's -- Energy
18 Information Administration to look at generation levels.

19 And we use a variety of other information, annual
20 reports of other companies and associated information.

21 Q. Mr. Myers, where is TVA's service territory?

22 A. TVA service territory it's -- it covers -- it covers
23 parts of seven states. Tennessee, Kentucky, parts of
24 Virginia, parts of North Carolina, parts of Georgia, Alabama
25 and Mississippi. A seven state region.

Laura Andersen, RMR 704-350-7493

1 Q. And where are TVA's coal-fired power plants operated?

2 A. Yes. We operate eleven coal-fired power plants, seven
3 are in the State of Tennessee. We operate two coal-fired
4 power plants in western Kentucky. And we operate two
5 coal-fired power plants in northern Alabama.

6 Q. And are all of the coal-fired power plants in those
7 three states, Tennessee, Alabama and Kentucky, operated by
8 TVA?

9 A. There are other coal-fired generators in the State of
10 Kentucky and the State of Alabama. In the State of
11 Tennessee, all coal-fired -- generate -- electrical
12 generating facilities, coal-fired are owned by Tennessee
13 Valley Authority.

14 Q. Do you know what the rough percentage of TVA's plants
15 in Kentucky is in relation to all?

16 A. On a capacity basis it's roughly 25 percent. And
17 that's close in Alabama also.

18 Q. About 25 percent?

19 A. (Witness nodding head.)

20 Q. What types of controls do TVA's coal-fired powered
21 plants have for controlling emissions of NOx?

22 A. They have a variety of technologies for the reduction
23 of Nitrogen Oxides. We have low NOx burners, we have flue
24 oxidation, we have selective noncatalytic reduction systems.
25 And we have a large fleet of selective catalytic reduction

Laura Andersen, RMR 704-350-7493

1 systems that are really state of the art.

2 Q. And would you just give us an idea of the size and
3 scope of SCR or an SNCR?

4 A. Well certainly an SCR is a large piece of equipment.
5 They vary in size, depending on the size of the unit that
6 they're going on.

7 But certainly some of our larger units that are in the
8 thousand megawatt size have very large SCR's. They have a
9 footprint that's several times larger than this courtroom.
10 And they extend up several stories high. I would say
11 certainly, you know, the height of a lot of buildings here
12 in Asheville.

13 Q. Do you have a rough cost for what it takes to install
14 SCR?

15 A. Yes. Certainly, the cost varies, depending on their
16 size. A bull run SCR with associated equipment, nearly
17 200 million.

18 Some of the SCRs like at Cumberland, which is some of
19 our larger units, around 160 million.

20 But a more typical size for a more typical unit, you
21 know, 70, 50 to 70 to 100 million in that range. So it
22 varies.

23 Q. And how long does constructing an SCR on an existing
24 plant generally take?

25 A. Generally around two years.

Laura Andersen, RMR 704-350-7493

1 Q. And are there any particular challenges when you put an
2 SCR on a plant that is already existing?

3 A. Yes, there are. There's a great deal of retrofit
4 issues around the installation, design and operation on such
5 a large piece of equipment on such a large coal-fired unit.

6 Just physically fitting the system in, is often
7 difficult. A lot of times the air heater's at a high level,
8 so the SCR has to be suspended in the air.

9 And the -- there's a lot of physical constraints of
10 getting that equipment on an existing coal-fired power
11 plant.

12 Q. Mr. Myers, I want to show you what's been admitted into
13 evidence as Plaintiff's Exhibit 75, which is a photograph of
14 the SCRs at our Bull Run power plant taken in March 2007.

15 Does this picture illustrate in any way those
16 retrofitting issues?

17 A. It certainly does. I think what this picture really
18 represents is just how big these things are. This is a big
19 unit. Getting that size SCR that you can see that's
20 represented by the scaffolding there, and all the structural
21 steel, you know, it shows you the scope and the size of an
22 SCR.

23 And fitting that in an existing design is -- it is
24 quite a design challenge.

25 Ad also Bull Run now is a one-unit plant. Certainly if

Laura Andersen, RMR 704-350-7493

1 you had multiple SCRs to plants with multiple units, the
2 retrofitting can be even more complex.

3 Q. You mentioned low NOx burners. What is a low NOx
4 burner?

5 A. When coal is injected into the boiler, a low NOx burner
6 injects it in such a manner that it elongates the very super
7 hot fireball, if you will, inside the boiler.

8 There's a lot of NOx -- Nitrogen Oxides made in the
9 combustion process, thermal NOx. The air contains a lot of
10 Nitrogen.

11 And in that very intense fireball, Nitrogen Oxides are
12 formed. A low NOx burner extends that fireball making it
13 less intense and reducing the formation of what is referred
14 to as thermal NOx.

15 Q. That reduces emissions?

16 A. That's right. That reduces the formation of, and
17 lowers the emission level of Nitrogen Oxide.

18 Q. What controls for sulfur dioxide emission exists on the
19 TVA system?

20 A. Certainly the state of the art controls the flue gas
21 desulfurization. We commonly refer to that as a scrubber.
22 That exists on a large amount of our fleet.

23 Also, we have been very -- as other technologies,
24 invested in the use of lower sulfur fuels. And have been
25 able, through fuel switching, and by adapting the plant to

Laura Andersen, RMR 704-350-7493

1 handle lower sulfur fuels, and the plant on handling systems
2 on the boiler, on air pollution controls, to use lower and
3 lower sulfur fuels. And that's also been a very big part of
4 SO2 controls.

5 Q. Let's talk about the first one you mentioned, the
6 scrubbers. How big are the scrubbers in relation to the
7 plan for the SCRs that you just described?

8 A. They're very big. They're larger than SCRs.

9 In essence you can think of it as almost adding a
10 chemical plant to a coal-fired power plant. They're
11 multiple buildings. They're several stories. They have
12 very large footprints.

13 They have a lot of ancillary equipment that would bring
14 limestone in, and either crush it on site or store it on
15 site. And then absorber buildings where the actual SO2
16 removal is conducted. And then systems to handle the
17 byproducts, the gypsum that's formed in the reaction.

18 So they're very large and extensive, oftentimes even
19 larger than the original plant itself.

20 Q. And then -- how does -- describe how burning lower
21 sulfur coal reduces emissions of sulfur dioxide.

22 A. Yes, certainly. If you don't have a -- on the end, a
23 scrubber or something that would remove the SO2 from the
24 flue gas strain. Then as -- you could burn a lower sulfur
25 fuel. The sulfur in the coal that's going to the furnace is

Laura Andersen, RMR 704-350-7493

1 reduced, and thereby it's just not available in the
2 combustion process. And so lower emissions of sulfur
3 dioxide out the stack.

4 Q. And is burning low sulfur coal just a matter of buying
5 a different kind of coal and burning it?

6 A. No, it's not. It's more complex than that.

7 Certainly systems to handle lower sulfur fuels, they
8 have different properties on how you -- conveyer systems.

9 In the boiler themselves, they have different
10 properties as they're burned. Making sure you have the
11 systems in the boiler to handle those.

12 And then also we have pollution control equipment down
13 stream of the boiler. And how those fuels -- how that
14 equipment performs with a lower sulfur fuel, has also been
15 an issue that we had to design and invest in to ensure that
16 while we were burning these fuels, we stay in compliance
17 with the applicable regulations.

18 Q. Do you know what the ranges of sulfur content is at the
19 TVA's unscrubbed units?

20 A. Yes. Certainly the preponderance of the coal that's
21 burned at TVA in our unscrubbed units, is under 1 pound per
22 million BTUs. That's a very low sulfur fuel.

23 And then we do have some units that are burning up to
24 one and a half pounds per million BTUs.

25 Q. What controls are there for reducing mercury emissions?

Laura Andersen, RMR 704-350-7493

1 A. Well certainly there are a variety on the TVA system.

2 We think one of the most effective and demonstrated
3 controls for reduction of mercury, is the combination of a
4 selective catalytic reduction system, coupled in combination
5 with a flue gas desulfurization and a scrubber.

6 So basically and SCR and a scrubber, working in
7 combination, are -- is one of the most proven technologies
8 and effective technologies for reducing mercury emissions.

9 Q. And how much of TVA's coal burning fleet has that
10 combination?

11 A. Currently it's 36 percent. And we will be, at the end
12 of the year, moving that up.

13 Q. What's happening at the end of the year?

14 A. At the end of the year we will be tying in our Bull Run
15 scrubber that's located outside of Oak Ridge at our Bull Run
16 plant, and that will push that combination up to about
17 42 percent.

18 Q. And as we saw the Bull Run in that picture already has
19 an SCR?

20 A. That's right. It has an SCR. And the scrubber is in
21 final phase of construction and will be in operation later
22 this year.

23 Q. How much mercury does the SCR scrubber combination
24 capture?

25 A. We have seen removals of 90 percent. We say we can

Laura Andersen, RMR 704-350-7493

1 reliably remove, consistently remove greater than 85
2 percent. But we've seen levels of 90 percent and greater
3 removal from combinations of SCR and FGD.

4 Q. Are there any other ways to generate electricity that
5 don't emit SO₂, NO_x or mercury?

6 A. Yes, they are. And certainly TVA has broad programs in
7 them. Certainly hydroelectricity is one of them. We have a
8 fleet of hydroelectric dams. We certainly are investing in
9 those dams now with hydro modernization to make sure that we
10 get all the energy that we can out of this renewable
11 resource, naturally replenished resource.

12 We also -- nuclear energy is another way to generate
13 without the emissions of those products that you just
14 mentioned.

15 And we are certainly -- have a nuclear fleet that
16 generates a large amount of our electricity around
17 37 percent of our generation comes from nuclear.

18 Q. Is TVA starting up nuclear --

19 A. Yes, certainly. We had a successful restart of our
20 Browns Ferry, Unit 1 in 07. And we are completing
21 construction of our Watts Bar facility, unit 1, at --
22 located in east Tennessee.

23 Q. Are there any others besides hydroelectric and nuclear?

24 A. Certainly there are. Renewable resources out of our
25 very successful green power switch program. We have been

Laura Andersen, RMR 704-350-7493

1 able -- in cooperations with our distributor partners and
2 others to bring in renewables into the valley.

3 We have solar overlays at 16 sites. We have the
4 largest wind farm in the southeast located on Buffalo
5 Mountain just outside Oak Ridge.

6 So we have been demonstrating the use of renewable
7 energy in the region.

8 Q. I guess another way to not generate emissions is to
9 reduce the demand for electricity?

10 A. Absolutely. That's -- you know, that's very critical.
11 We looked at a program that TVA's engaged in, demand side
12 management in energy efficient program that has been
13 launched at TVA. Where by 2012, we are seeking to reduce
14 the demand on our system by 1400 megawatts. That's larger
15 than any one unit we have. That's an ambitious program.

16 So as we look -- as demand is going up on our system,
17 what we're trying to do is lower that demand -- lower that
18 demand.

19 And as to meet future generating needs, is to fill that
20 gap with very low emitting sources like nuclear, like
21 additional capacities from hydroelectric plants. And then
22 certainly -- clean up -- continue further progress in our
23 clean air efforts on existing plants.

24 MS. GILLEN: With the Court's permission, I would
25 like to invite Mr. Myers to walk down to the map, and really

Laura Andersen, RMR 704-350-7493

1 help illustrate his next testimony.

2 THE COURT: That would be okay. Mr. Myers.

3 Q. Mr. Myers, what's been marked as Defense Exhibit 1 is a
4 map of the service territory and a little bit more than you
5 described.

6 I wonder if you could just walk us through the
7 Tennessee Valley coal-fired plants and describe them and
8 their specifications in pollution controls?

9 A. I'll be glad to. I guess we'll start from east to
10 west. We'll start over here closest to North Carolina.

11 At our John Sevier plant that's located in Hawkins
12 County. It's a four-unit plant. It is -- the types of
13 emission controls that it has -- right there is John Sevier.
14 It has low NOx burners on all units for control of Nitrogen
15 Oxides.

16 It also has a HERT system on Unit 1. That is H-E-R-T.
17 It stands for High Energy Reagent Transport. It can be
18 described as a select -- an enhanced selective noncatalytic
19 reduction system. An advanced NOx system for reductions.

20 For further reductions in NOx, HERT systems are going
21 to be installed on Units 2, 3 and 4 this next year. It
22 burns a low sulfur fuel, about a 1.16-pound per million fuel
23 right now. And it's made reductions to get there. So it's
24 burning a low sulfur fuel.

25 And it is going to be equipped with two scrubbers, one

Laura Andersen, RMR 704-350-7493

1 of which will be substantially complete in 2011 to hit a
2 target of January 1, 2012. And another scrubber that will
3 come on in time to meet a June 2012 time frame.

4 Q. Mr. Myers, let's talk about those planned scrubbers at
5 John Sevier. There's been a lot of discussion at the trial
6 thus far about the effect of the vacatur of CAIR will have
7 on TVA's plan for installing, specifically that scrubber at
8 John Sevier.

9 Do you have any information about TVA's plans?

10 A. Certainly. I think the information we would say is
11 that we followed the CAIR vacatur that happened just a
12 couple -- a week and a half ago.

13 And certainly there are no plans that are -- there are
14 no plans to change.

15 I had a conversation with TVA's president and chief
16 operating officer on Monday, to confirm what we had at staff
17 level been working with, is that there's no change in plans.
18 And he certainly assured me that there are no change in
19 plans.

20 That we have announced these projects to provide
21 further regional -- progress and regional air quality. And
22 we are proceeding with our clean air plans.

23 This will include the completion of our Bull Run
24 scrubber at our Bull Run facility.

25 At the two scrubbers that are under construction now at

Laura Andersen, RMR 704-350-7493

1 our Kingston facility.

2 Moving forward with the two scrubbers at John Sevier.

3 Continuing on with SCRs to be completed at John Sevier.

4 Such that all of our east Tennessee plants will be

5 fully scrubbed, fully SCR.

6 And then further emission reduction -- further emission

7 reductions, like continuing on with fuel switches at -- on

8 our Johnsonville plant. And annual operation of our NOx

9 controls beginning in January 09.

10 Q. Do you know why TVA is committed to continuing its
11 control plan even without CAIR?

12 A. Well, I think -- I can put that under two categories.

13 One is our statutory mission to provide affordable electric
14 power for environmental stewardship and economic
15 development.

16 You couple all those three together, and our board
17 looked at that very carefully this last year.

18 And in May of 2008, we adopted an environmental policy
19 that dealt with a lot of issues, but certainly with clean
20 air.

21 And it said, we are going to continue the progress that
22 we've had in our leadership, in putting emission controls
23 on, we're going to continue that. And over the next decade,
24 we're going to have controls on 80 percent of our system.

25 That was not predicated on CAIR. That was really not

Laura Andersen, RMR 704-350-7493

1 predicated on rule making. It's part of the TVA mission.

2 Underlying that, certainly, the knowledge that there
3 are -- that CAIR, in and of itself, really didn't put a lot
4 of additional controls, regulatory drivers, under our
5 requirements.

6 That CAIR packaged a lot of the underlying requirements
7 in the Clean Air Act for coal-fired electric utilities.

8 That there's still many regulatory drivers around, the
9 National Ambient Air Quality Standards For Ozone. National
10 Ambient Air Quality Standards on Fine Particulate, Regional
11 Haze Improvements, that all will go for -- were not vacated.
12 Those are still drivers. They're still pushing forward.

13 And for regional air quality improvements to meet these
14 targeted goals, and part of our statutory mission, we're
15 proceeding with our clean air plans.

16 Q. Okay. Mr. Myers, if you could continue on and explain
17 to the Court, how much electricity can John Sevier generate?

18 A. It generates about 5 billion kilowatt hours a year on
19 average. That's enough to power about 350 million -- excuse
20 me -- 350,000 thousand -- excuse me. That would be a large
21 plant. About 350,000 homes. So it's -- it provides a lot
22 of electrical generating capacity.

23 Q. Has it always generated that much?

24 A. Not always, no. As we looked, it's rated with a name
25 plate of 800 megawatts. And certainly that's it's capacity.

Laura Andersen, RMR 704-350-7493

1 It's load -- the amounts it generates, depends on the
2 demands on our system. Certainly in the summertime and
3 wintertime, those demands are higher than they are in the
4 spring. And we operate that plant in such a manner to meet
5 load requirements. But that varies over the year and
6 throughout the year and over the day, even.

7 Q. And has the generation demand on John Sevier and the
8 other plants varied over a long --

9 A. Yes.

10 Q. -- period of time as well as?

11 A. Yes. Over -- we have seen an increased demand, as
12 we've discussed, we've had an increased demand on our
13 system, overall. And certainly an increased demand in our
14 coal-fired power plants, such that over the last several
15 years, we have seen an increase in generation, but yet a
16 decrease in overall emissions.

17 Q. Okay. You want to move to the next --

18 A. Keep moving?

19 Q. I might suggest you might want to come to the down
20 stage portion of the map, that might be easier.

21 A. I'll move a little closer to Oak Ridge. Over here in
22 Anderson County is our Bull Run steam plant. It is a
23 one-unit plant. It's got a rated capacity around 950
24 megawatts. This plant also had fuel switches to lower the
25 sulfur content in the fuel. It burns a low sulfur fuel

Laura Andersen, RMR 704-350-7493

1 right now.

2 As I've discussed, a scrubber, a \$300 million scrubber
3 has been under construction now for a couple years now and
4 is in its final stages. It will be tied on or in operation
5 later this year.

6 So it is also equipped with selective catalytic
7 reduction system that was installed in 2004. So at the end
8 of the year, this plant will be fully scrubbed and fully
9 SCR.

10 Moving on down into Roan County, Tennessee, is our
11 Kingston plant. It's a little larger, it's around 1700 --
12 has a capacity of around 1750 megawatts. It consists of
13 nine units. All nine of those units have been equipped with
14 selective catalytic reduction systems, so it's fully SCR.

15 We're designing two, and constructing two scrubbers at
16 that plant right now. There's one scrubber that will serve
17 units one through five. Another scrubber that will serve
18 units six through nine.

19 Those scrubbers are on -- in construction and on
20 schedule. They are -- we look to tie one of the scrubbers
21 on the end of 09, and another scrubber coming on in 2010.

22 Such that once we -- when you look at the investment,
23 Bull Run will be fully scrubbed and fully SCR at the end of
24 the year. Kingston will be fully scrubbed, fully SCR in
25 2010. John Sevier will have SNCR and scrubbers on it in

Laura Andersen, RMR 704-350-7493

1 2012.

2 And those technologies right there, constitute an
3 expenditure of around \$1.7 billion.

4 On top of that, at John Sevier, we are going to
5 continue on and put in selective catalytic reduction
6 systems.

7 Once we get the scrubbers built, we now will have room
8 to retrofit and fix in -- actually have footprint to fix and
9 install the catalytic reduction technology. So we will
10 continue on and have that. All three plants will be fully
11 scrubbed and fully SCR.

12 Q. Just so I understand, even though you plan to put an
13 SCR on, you -- TVA still put a SNCR in first?

14 A. Yes, we did. Yes, we did. We -- certainly in that
15 region, moving forward with NOx reductions were important.
16 And we are -- we certainly put low NOx burners on early on
17 at that plant, and we are continuing on with putting the
18 perk systems on for further NOx reductions next year.

19 Q. And when those three plants have SCRs and scrubbers,
20 then we would -- you would expect mercury benefits to
21 improve?

22 A. Certainly. Those -- you know, those are the most
23 effective controls that we know -- that are reliable and
24 demonstrated controls. So we'd see very effective mercury
25 controls.

Laura Andersen, RMR 704-350-7493

1 Q. Want to continue our tour westward?

2 A. Okay. We're going to move now over near Nashville is
3 our Gallatin plant in Sumner County, Tennessee. This is a
4 four-unit plant, with a capacity of around 800 megawatts.

5 And Gallatin is a very interesting story. It burns a
6 very low sulfur fuel. It -- that very low sulfur fuel, in
7 combination with low NOx burners, has achieved some
8 remarkable emission reductions.

9 Certainly at Gallatin, we've seen over an 80 percent
10 reduction in SO2 emissions. It burns about a .6 pounds per
11 million coal. Very low sulfur fuel.

12 And its NOx is being emitted at a very low rate. It's
13 around a .15 pounds per million of BTU, which is a very low
14 rate. So that plant has made a lot of progress in reducing
15 emissions.

16 Further west near Clarksville, Tennessee, in Cumberland
17 County, is our Cumberland steam plant. And that's the
18 largest plant on our system. It consists of 2-1300 megawatt
19 units. These are cell burners. It is equipped with SCRs
20 and scrubbers. So it is fully controlled.

21 It is, with state of the art controls at our Cumberland
22 plant, and has been for several years now. The scrubbers
23 were installed in the mid nineties. Certainly as part of
24 TVA's program for the acid rain program. And certainly the
25 SCRs were installed several years ago have been in operation

Laura Andersen, RMR 704-350-7493

1 now for four or five years.

2 Q. Johnsonville?

3 A. Yeah. Johnsonville is a 10-unit plant, located in
4 Humphreys County, Tennessee. It is -- all units have low
5 NOx burners. It's been successful in lowering the sulfur
6 content of its coal. It's currently burning at around a 1.3
7 pounds per million coal. And Units 1 and Units 4 are --
8 Unit 1 has an SNCR. And Units 4, has an H-E-R-T, the HERT
9 system on it.

10 Units 2 and 3 are scheduled to have a HERT's next year.
11 It will continue to have further reductions in Nitrogen
12 Oxides, and fuel switches are planned for Johnsonville to
13 even lower its sulfur content.

14 Moving on over at our Allen plant, out near the
15 Mississippi River. It consists of three units, three
16 cyclone units. Those units are all equipped with selective
17 catalytic reduction systems.

18 It's the site where we installed our first two SCRs in
19 the State of Tennessee back in 2001. So they have been in
20 operation now for sometime.

21 And when we talk about lower sulfur fuels, Allen is
22 really burning a low sulfur fuel. It's burning below a
23 point -- it's burning around a .49 pounds per million fuel.
24 A very low sulfur fuel. So it has low NOx emissions and low
25 SO2 emissions.

Laura Andersen, RMR 704-350-7493

1 Q. Those are the coal-fired plants in Tennessee?

2 A. Those are the coal-fired plants in Tennessee. Alabama?

3 Q. Would you like to move to another state?

4 A. Yeah. Let's move to Alabama. We have two plants in
5 Alabama.

6 We have Widows Creek plant, that it is an eight-unit
7 plant. It has two units, 7 and 8 that are the larger units,
8 they're 550-megawatts each. These are the units that we
9 have been demonstrating scrubber technology for a long time.
10 The first scrubber was installed in '79 at that plant.

11 And these units also have been equipped with selective
12 catalytic reduction systems. So that the 7 and 8 are fully
13 SCR and fully scrubbed.

14 We also have six other units there, Widows Creek 1
15 through 6. Those units are equipped with low NOx burners
16 for Nitrogen Oxide control and burns a low sulfur fuel.

17 Q. When was the scrubber on Unit 8 put in?

18 A. Yeah. It was put in, in 1979, and has been
19 demonstrating that technology now -- it demonstrated that
20 technology to a lot of utilities over -- its design was
21 really the basis for other designs for greater than a
22 decade.

23 Q. And Colbert?

24 A. Yes. In Colbert, located over near Muscle Shoals,
25 Alabama, is a five-unit plant. There are 4-200 megawatt

Laura Andersen, RMR 704-350-7493

1 units and 1-550 megawatt units at Colbert.

2 The large unit, Colbert Unit 5, is equipped with
3 selective catalytic reduction technology.

4 All units have -- all units have low NOx burners and
5 burn a low sulfur fuel.

6 Q. And how about TVA's plants in Kentucky?

7 A. Yes. We have two plants in western Kentucky. In
8 Muhlenberg County is our Paradise plant. It is the second
9 largest plant on the TVA system. It consists of three
10 units. And those units all have SCRs and all have FGD.

11 Units 1 and 2 received their scrubbers back in the
12 eighties. Paradise 3 had its scrubber installed in 2006.
13 And the SCRs have been in operation for some time.

14 Certainly our SCR at Paradise Unit 2, was constructed
15 in 2000. So we certainly -- and that was one of the first
16 demonstrations of SCR technology in the region.

17 Further to the west on the Ohio River is our Shawnee
18 plant. It is a 10-unit plant. Nine of the units are
19 pulverised coal.

20 Unit 10 is a full-scale demonstration of a
21 atmospheric -- AFBC, Atmospheric Fluidized Bed Technology.
22 Where it's an inherent design to reduce the emissions.
23 Where limestone is burned with the coal reducing both SO2
24 and Nitrogen Oxides. That's our Unit 10 at Shawnee.

25 At Shawnee, all units have low NOx burners for Nitrogen

Laura Andersen, RMR 704-350-7493

1 Oxide control. And Shawnee also burns a very low sulfur
2 fuel, down around .7 pounds per million BTU fuel.

3 So I think what you will see is a fleet of plants that
4 have a large set of controls on it.

5 Q. Thank you, Mr. Myers. You may retake your seat if you
6 would like.

7 I'm showing you now, it will appear on your monitor,
8 it's also TVA Exhibit 1, marked as Defendant's Exhibit 2.
9 What is this exhibit?

10 A. Yes. This is a -- this is an exhibit that I prepared
11 showing the -- first of all showing the power service area
12 of the Tennessee Valley Authority, in that seven state
13 region that we discussed.

14 It also shows the location of our 11 coal-fired power
15 plants. It provides a description of how many units there
16 are there. And the overall capacity of that plant, along
17 with a depiction of the types of environmental controls that
18 are at those plants. Where we have scrubbers, where we've
19 announced scrubbers, where we put SCRs on, and where we have
20 other environmental emission controls.

21 Q. So this is basically a summary of what you just
22 testified to?

23 A. It is.

24 MS. GILLEN: I would like to move Defendant's
25 Exhibit 1 and 2 into evidence.

Laura Andersen, RMR 704-350-7493

1 THE COURT: Let those be admitted.

2 (Defendant's Exhibit Number 1 & 2 having been marked, were
3 received in evidence.)

4 Q. (Ms. Gillen) Mr. Myers, did TVA assist in the
5 development of scrubber technology?

6 A. Yes we did. In the early seventies we built a pilot
7 plant up at Shawnee, at our Shawnee facility, to demonstrate
8 that technology.

9 And then we deployed that technology later in the
10 seventies with a full size scrubber on Unit 8 at our Widows
11 Creek plant.

12 Q. Has TVA assisted sites in the region to monitor air
13 quality in the area?

14 A. Yes. A long history on monitoring ambient levels of
15 fine particles, ozone, and a variety of other atmospheric
16 measurements.

17 We started out -- we've done it for years. Some of the
18 more notable stuff was in the mid nineties. We worked with
19 the Southern Oxygen study around Nashville, trying to learn
20 how ozone formed in urban plumes, to design systems and
21 policies and monitoring systems that can account for how
22 ozone is formed, certainly in this region, and certainly in
23 urban areas. We were instrumental in that study.

24 We further monitored -- been assisting monitoring with
25 TVA equipment, personnel and assets out in the Memphis area.

Laura Andersen, RMR 704-350-7493

1 As Mississippi, Arkansas and Tennessee worked
2 cooperatively in the Memphis nonattainment area, to look at
3 how ozone is formed in that region, and what reductions and
4 which control strategies might work in that region.

5 Q. And did TVA participate in the Look Rock --

6 A. Yes, certainly. Moving over to the east side of the
7 system, we have had a long -- a long and -- association with
8 doing air quality monitoring in the Great Smoky Mountains
9 National Park, in conjunction with EPA, the National Park
10 Service and a number of folks. We've monitored for a
11 variety of pollutants in the Great Smoky Mountains National
12 Park.

13 And with regard to the Look Rock site, which is a site
14 that is instrumented with a broad number of measuring
15 devices that measures a lot of air quality parameters in a
16 sustained manner and a long-term manner. We certainly
17 assisted in that site, particularly with fine particle
18 measurements.

19 Q. And has TVA been involved in similar projects for NOx
20 controls?

21 A. Yes we have. Again, certainly in a variety of areas.
22 And we've been doing that for some time now.

23 Q. Was it involved in the Ozone Transport Assessment
24 Group, OTAG?

25 A. Yes. OTAG, as it's referred to. TVA followed the

Laura Andersen, RMR 704-350-7493

1 studies and science that was underpinning OTAG. And was
2 very much involved in that process.

3 Q. And what came out of -- what was the result of OTAG?

4 A. Actually the result of OTAG was really the NOx Sip
5 Call. The ruling from EPA that required NOx reductions from
6 stationary sources from 22 states in the east.

7 Q. And was the TVA service territory included in those 22
8 states?

9 A. Yes it was. Certainly Kentucky, Tennessee, the parts
10 of Alabama where our plants are, were in that. All of our
11 plants were in the NOx SIP Call region.

12 Q. And did TVA support the NOx SIP Call?

13 A. Yes we did.

14 Q. Why?

15 A. We thought it was a good program. That as we looked at
16 where we were going, we saw the 1997 National Ambient Air
17 Quality Standards for ozone being a stringent standard.

18 And it provided a program of looking at where emissions
19 were, where emissions needed to go, and then designed a
20 program for large stationary sources to make reductions that
21 could be accounted for as regions moved forward with air
22 quality.

23 It assured that these stationary sources would
24 collectively make these reductions.

25 So we thought it was a good program, put everybody on a

Laura Andersen, RMR 704-350-7493

1 level playing field, and followed several successful
2 programs. So we thought it was the right way to go.

3 Q. Was TVA involved in the Southern Appalachian Mountain
4 Initiative which is referred to as SAMI?

5 A. Yes. We were active participants in SAMI. In fact,
6 TVA loaned personnel and provided equipment for SAMI and
7 even at times acted as contractors to SAMI. So we were
8 involved, very much involved with SAMI.

9 Q. And how about the Visibility Improvement State and
10 Tribal Association of the Southeast, which is better known
11 as VISTAS?

12 A. Yes. As the name implies, VISTAS was an Association of
13 States and Tribes. So therefore, TVA was not a member of
14 VISTAS, it was limited to States and Tribes.

15 But we were active participants in VISTAS, and
16 certainly tracking the development of VISTAS. And what that
17 regional planning group has done to plan for strategies for
18 regional haze improvements, for visibility improvements
19 across the southeast.

20 Q. Did TVA have occasion to work with North Carolina on
21 any of these pollution control programs?

22 A. Yes, we did, in a variety of ways. Certainly as the
23 NOx SIP Call got going, as the National Ambient Air Quality
24 Standards got lowered, we had discussions with North
25 Carolina folks.

Laura Andersen, RMR 704-350-7493

1 We also, you know, in SAMI, we worked with North
2 Carolina Department of Environment Natural Resources, DENR,
3 folks, the air quality division in that, along with other
4 state programs. So we've had a long history there.

5 Q. And why does TVA participate in these pollution control
6 research initiatives?

7 A. Well, it's really part of our structure. We have been
8 providing, out of our environmental stewardship programs of
9 moving the region to protecting the stewards of the region.
10 To make sure that we had the right understanding of the
11 right science that would support good policy decisions
12 moving forward. We've cooperated with these agencies to
13 make sure that good science is being done, that it's been
14 factored in. That as we developed policies to move forward,
15 that they're on good footing and so we -- that's part of
16 what we do.

17 Q. Has TVA ever run pollution controls in advance of
18 regulatory deadline?

19 A. Yes, we have. On several occasions.

20 Q. If you would turn to, in your notebook, and we will
21 show it on the screen as well, what's been marked as
22 Defendant's Exhibit 167 for identification.

23 A. Yes.

24 Q. What is Defendant's Exhibit 167?

25 A. It is a letter that transmits a Memorandum of

Laura Andersen, RMR 704-350-7493

1 Understanding from TVA, to the Governor of Tennessee,
2 discussing our Nitrogen Oxide reduction program, and our
3 ability to, and plans for reducing NOx in advance of the NOx
4 SIP Call.

5 Q. And if you -- I think it's the third page of this
6 exhibit, is that the Memorandum of Understanding?

7 A. Yes. That is the Memorandum of Understanding, yes.

8 Q. And can you tell us about why did TVA enter into this
9 Memorandum of Understanding?

10 A. Yes. Certainly. You see, as we -- this was delivered
11 to the State of Tennessee in 2000. As we -- the 1997
12 National Ambient Air Quality Standards for 8-hours of ozone
13 were moving forward.

14 And as states wanted to look and see how they might
15 attain that standard. What counties might be designated as
16 nonattainment. What were the levels of ozone in various
17 counties. What monitors show, what areas might be
18 designated nonattainment. What's going to happen.

19 TVA was planning for the NOx SIP Call that required
20 construction of a lot of selective catalytic reduction
21 systems.

22 And as we were designing those systems, we couldn't
23 wait till right to the deadline and build them. We decided
24 to get on early.

25 As I discussed, we started the first SCR up at Paradise

Laura Andersen, RMR 704-350-7493

1 in 2000. We brought selective catalytic reduction
2 technology to Tennessee in 2001.

3 Instead of just building them, testing them, and making
4 sure that they would meet their performance requirements,
5 and then running -- and then firing them up only when the
6 regulations came in, we told the State of Tennessee, no. If
7 for your planning purposes, to account for what we're doing,
8 so that you can have an understanding of what we're doing
9 and where we're going, these are our plans.

10 And we walked through and estimated for them, the
11 amount of reductions that we would see in Nitrogen Oxides in
12 the summer months in 2001, 2, 3 and 4.

13 Q. And who signed this Memorandum of Understanding? I
14 think it's on the last page of the exhibit.

15 A. Yes. This -- this Memorandum of Understanding was
16 signed by all of TVA's board members at that time, and
17 transmitted to the Governor.

18 Q. Did TVA achieve the goals set out in this Memorandum of
19 Understanding?

20 A. Yes, we did. We well overachieved in some years. In
21 one year we were marginally under. But overall, we well
22 oversubscribed and met the full intent of this Memorandum of
23 Understanding.

24 Q. Now, did TVA gain anything by operating its SCRs early?

25 A. Well, yes.

Laura Andersen, RMR 704-350-7493

1 In the NOx SIP Call, there were -- there was a program,
2 the Compliance Supplement Tool, which offered states to
3 allocate NOx tonnages for allowances in the NOx SIP Call,
4 either early to sources that put controls on early. Or they
5 could allocate them to sources that were trying to put
6 controls on, but for some reason got delayed. Kind of a
7 safety valve, if you will.

8 The State of Tennessee and our sources awarded them for
9 early reductions. But the amount of early reductions that
10 we received some 18,000 -- around some 18,000 allowances was
11 far -- we far exceeded that with the Memorandum of
12 Understanding. We certainly made that.

13 Q. And that would be kind of a cap and trade program?

14 A. Yeah. The NOx SIP Call was. Yes. It was a cap and
15 trade program patterned after the acid rain program.

16 Q. What is the TVA's reaction to these cap and trade
17 programs?

18 A. Generally we're supportive of these programs. We've
19 seen that it's a way as I described, of looking where the
20 emission levels are, looking where emission levels need to
21 be to achieve regional air quality improvements, and then
22 setting a program to go forward.

23 And it's a way of also -- of showing -- being out in
24 front of a lot of the regs. It captured for the NOx SIP
25 Call as other reductions required from other resources were

Laura Andersen, RMR 704-350-7493

1 down the line. It kind of showed what the requirements were
2 for coal-fired utilities. And saying -- so we've supported
3 these programs.

4 Q. How has TVA implemented its programs in reaction to
5 these cap and trade?

6 A. Certainly from cap and trade programs, we have gone
7 into them with self-compliant strategies. Early on in the
8 acid rain program, we built scrubbers on our system, as I
9 described up at Cumberland, in the mid nineties, that was
10 central to developing a plan for self-compliance with the
11 Acid Rain Program.

12 We have followed that up with additional scrubbing --
13 with additional scrubbing capacity, with the fuel switches.
14 And so we have made the reductions in the investments in our
15 system through self-compliant strategies.

16 We have also done that with the NOx SIP Call, by
17 getting out in front, demonstrating the technology, putting
18 all the equipment, and investing in the region.

19 And one of the reasons we do that, as you see the --
20 the rate payers are the ones that pay for the equipment.
21 And the air -- they get the air quality benefit of that
22 equipment, rather than exporting capital out of the region.

23 So we're -- those that pay for it get to see the
24 benefit of it. That's really why TVA has had self-compliant
25 strategies.

Laura Andersen, RMR 704-350-7493

1 Q. Has that strategy ever been announced by the board?

2 A. Yes, it has. Certainly in our 2007 strategic plan, it
3 was announced as we look with emission allowance use that we
4 would only use the markets for limited use. So that
5 basically it set us on a self-compliant strategy.

6 Then further in our 2008 environmental policy, that was
7 basically augmented and put forward concretely as we looked
8 going into the future, we are going to put on more and more
9 emission control technologies. Such that over the next
10 decade, we will have 80 percent of our plants -- 80 percent
11 of our generating capacity controlled with advanced
12 controls.

13 Q. If you would turn to what's been marked as Defendant's
14 Exhibit 182 on your book. It is also being shown on the
15 monitor with a slight glare, I apologize.

16 Is this the environmental policy that you just
17 described?

18 A. It is the environmental policy, I know it well.

19 Q. If you would turn to page four, Chapter 2. I'll show
20 you, I think you can zoom in on the section that says, Air
21 Quality Improvement, on bottom right corner.

22 A. Yes.

23 Q. Is this the section that talks about the
24 self-compliance?

25 A. Yes. It's certainly with air quality improvement, we

Laura Andersen, RMR 704-350-7493

1 have an environmental objective outlined in here to continue
2 to reduce SO₂, NO_x, mercury and particulate emissions and to
3 engage with regional and national stakeholders for further
4 progress.

5 And then as we -- to achieve that objective, we laid
6 out several critical success factors that would allow us to
7 achieve that environmental objective.

8 And one of those was by reducing emissions across the
9 system. By continuing to install emission reduction
10 equipment and new technology, to control over 80 percent of
11 the fossil generation in the next 10 years.

12 Q. Are there any other instances where TVA operates
13 pollution controls voluntarily, like this Memorandum of
14 Understanding that you just discussed?

15 A. Yes, we have. We have been operating our SCRs,
16 certainly on the eastern side of our system in the shoulder
17 months of the NO_x SIP Call.

18 As you're aware, the NO_x SIP Call is a 5-month season
19 around the ozone season, where ozone is formed in the summer
20 time.

21 The National Park Service had shown that there were
22 days in the park in April, where there were elevated levels
23 of ozone.

24 And certainly working with the National Park Service in
25 the State of Tennessee, we said we would operate those SCR

Laura Andersen, RMR 704-350-7493

1 assets, certainly on the east side -- eastern side of our
2 system on the shoulder months. And we have -- and we have
3 done that.

4 MS. GILLEN: At this time I would like to move
5 Defendant's Exhibit 167 and 182 into evidence.

6 THE COURT: Let them be admitted.
7 (Defendant's Exhibit Number 167 & 182 having been marked,
8 was received in evidence.)

9 Q. (Ms. Gillen) Mr. Myers, if you would look in the book
10 at what has been marked as Defendant's Exhibit 165. I
11 apologize for the quality of this copy. Do you recognize
12 this document? Sorry. I need to let you get to it.

13 A. I'm there. I do recognize this document.

14 Q. And what is it?

15 A. It is a set of principles called the Southern Air
16 Principles, that was signed in 2001, by Governors of four
17 southeastern states; North Carolina, Tennessee, Georgia and
18 South Carolina.

19 Q. Is TVA a signatory to this document?

20 A. No, we are not. We were not a signatory to this
21 document. But we certainly were actively engaged as these
22 principles were developed and certainly working with
23 Tennessee on these principles.

24 Q. And was there a specific directive associated with this
25 agreement?

Laura Andersen, RMR 704-350-7493

1 A. Yes. You know, the principles basically covered that
2 each state must do its part to protect and improve air
3 quality. And that regional air quality must be addressed
4 through regional approaches that address each state's unique
5 qualities and needs.

6 And further, that the southern states must continue to
7 work to develop and implement new strategies that through
8 regional air quality, such as multi-pollutant reduction
9 strategies for reducing Nitrogen Oxide, sulfur dioxide,
10 mercuries in innovative transplantation and energy policies.

11 Q. And the four states that signed this agreement -- when
12 was it signed?

13 A. These principles were signed in December of 2001.

14 Q. And have the four states that signed this agreement
15 fulfilled it?

16 A. Certainly in different manners.

17 Q. If you would turn in your book to what's been marked as
18 Defendant's Exhibit 166.

19 A. Yes.

20 Q. Do you recognize this document?

21 A. Yes, I do.

22 Q. What is it?

23 A. It is a document that I put together that shows from
24 2002 -- from the time the Southern Air Principles was
25 signed, in essence, the emissions of SO2 by the signatory

Laura Andersen, RMR 704-350-7493

1 states from coal-fired electric utilities.

2 And documents the emissions of coal-fired utilities in
3 each state, the progress that they have made since the
4 signing of these principles.

5 Q. And could you describe for the Court what this graph
6 indicates?

7 A. Well, we've seen some different trajectories. We have
8 seen -- Georgia came in, certainly, as a state with the
9 highest SO2 emissions of the signatory states, and has
10 continued that position increasing their -- increasing their
11 output of SO2, even in this last year up around
12 640,000 tons.

13 North Carolina tracked relatively flat for a couple of
14 years, before increasing emissions about 25,000 tons of
15 emissions between 2004 and 2005. Before showing progress in
16 getting back, basically getting back to the starting line at
17 2007. And then moving down on a lower trajectory here for
18 2007.

19 Q. I think you misspoke, getting back to the starting line
20 in 2006?

21 A. Yeah. Thank you so much. That's what I -- the
22 emissions were relatively unchanged. A slight uptick or
23 uptick in 2005. Since 2005 started a downward slope.

24 Certainly from the TVA or for -- again, these are the
25 seven plants -- these are emissions of our seven plants in

Laura Andersen, RMR 704-350-7493

1 the State of Tennessee, and you can see that we have had
2 steady and systematic reductions in SO2.

3 Q. Just let me clarify. These are state reductions?

4 A. These are reductions by states in coal-fired electric
5 utility in those states.

6 Q. In Tennessee?

7 A. In Tennessee, that's all TVA.

8 Q. Okay. How about South Carolina?

9 A. You know, South Carolina has come in fairly low, but
10 has had pretty static progress, then showing an improving
11 trend between 2006 and 2007.

12 Q. Mr. Myers, if you would turn your book to what's been
13 marked as Defendant's Exhibit 164. It's two pages. We will
14 start with the first page.

15 A. Yes.

16 Q. What is Defendant's 164?

17 A. Well, it's a chart that I constructed showing the -- to
18 illustrate the type of control technologies that different
19 utilities have, looking at both the amount of scrubbers and
20 SCRs that are owned and operated by several different
21 utilities in this geographical region. The top two --

22 Q. Before we start into the slide. What sources did you
23 use to generate these graphs?

24 A. Yeah. Certainly we used the Argus Scrubber Report.

25 Argus is a national media service that tracks the deployment

Laura Andersen, RMR 704-350-7493

1 of coal-fired utilities. They put a scrubber report
2 together. They put an SCR report together. We use that.

3 We also augmented that with looking at what was on
4 company's web sites and verifying if they said they had an
5 SCR on, did the emissions from the CAMD web site match that
6 up. So we tried to make sure that this was as accurate of
7 representation of the capacity that was in operation in 2005
8 for these different companies.

9 Q. Could you describe to the Court what the chart shows?

10 A. Right. On the two upper graphs that are on this page
11 deal with scrubbers or sulfur -- scrubbers that remove SO₂.

12 What you see in the upper right, is a percent of
13 coal-fired capacity scrub.

14 So that is -- if you look at the total capacity of the
15 system for each of these utilities. And those utilities are
16 TVA, our system.

17 American Electric Power, which has a broad region, but
18 a lot of their generation is to the north of us.

19 Progress Energy and Duke Energy here to the east of our
20 system.

21 And then the southern company that is located in,
22 primarily in Georgia, Alabama and Mississippi. So kind of
23 sets the geographic area for these different companies.

24 We looked at, again, up in the upper right, was the
25 percent coal-fired capacity of what was the scrubbing

Laura Andersen, RMR 704-350-7493

1 capacity. How much of it was on the fleet of generation.

2 Then we also looked at it to get the different size of
3 the systems out there is, how many megawatts of your
4 capacity was fitted with this technology.

5 And so you see that's on the upper -- the upper left
6 side.

7 Q. Why did you do the two methods?

8 A. We thought it gave an overall picture. You certainly
9 can have a smaller company that can do, put one or two
10 projects on. On a percentage basis it's very high. But in
11 terms of iron and steel in the ground and reducing
12 emissions, it takes -- what we're trying to do is get a lot
13 of megawatts controlled.

14 Q. Let's move to the second page of Defendant's 164. What
15 does this exhibit show?

16 A. Well this shows -- this updates it for 2006.

17 You'll see that we added a company on here. We put
18 Duke Energy. We added Duke Energy into the 2006. They had
19 merged with Synergy. And as we were putting systems on
20 here, they added acquired some scrubber technology in their
21 plants in Ohio and Kentucky. So we put that on there.

22 Basically it shows the same information, it updates it.

23 While we previously were shown, and I guess in terms of
24 trends, you'll see that progress was made regionally in all
25 these companies, as that type of deployment technology.

Laura Andersen, RMR 704-350-7493

1 Certainly here, Progress Energy, close to Asheville,
2 installed the scrubbers on its Asheville plant. And those
3 are reflected here.

4 We also installed 1100-megawatts of -- we installed a
5 scrubber on our Paradise 3 and put 1100-megawatts on.

6 So progress was made by all, so the percentages went
7 up.

8 And certainly from an FGD perspective, we continued our
9 lead in the deployment of that technology.

10 With regard to SCRs, we again showed that this is some
11 years after the NOx SIP Call, so everybody's been putting on
12 SCRs to comply with that program. But we still are a leader
13 in that.

14 You'll see that ADP, certainly being a large system,
15 stepped up and really grabbed this top spot in terms of SCRs
16 total megawatts.

17 But clearly TVA is a leader in the deployment of both
18 of these technologies.

19 Q. We don't have an exhibit for the 2007 statistics. But
20 I believe that plaintiff's witness had testified that
21 percentages were going up. Had percentages also been going
22 up for TVA's system?

23 A. Yes. It certainly -- well, in 2007, we didn't add any
24 scrubbers. We just added the Paradise 3.

25 But certainly as we move forward in 2008, our

Laura Andersen, RMR 704-350-7493

1 percentage will go up.

2 And we do see scrubber technology coming on as
3 others -- as others deploy more and more of this technology.

4 MS. GILLEN: At this time, Your Honor, we would
5 like to move Defendant's Exhibit 164, 165 and 166 into
6 evidence.

7 THE COURT: Let those be admitted.

8 (Defendant's Exhibit Number 164, 165 & 166 having been
9 marked, were received in evidence.)

10 Q. (Ms. Gillen) Mr. Meyers, have you prepared a comparison
11 of TVA system and North Carolina's system in terms of
12 pollution controls?

13 A. Yes I have.

14 Q. And in just a general way, what did that comparison
15 show?

16 A. Certainly with regard to control equipment, we've
17 installed -- we've installed a lot of control equipment
18 compared to North Carolina. They have been making -- they
19 have been making progress in that.

20 But in terms of SO2 emissions, we're certainly lower
21 than they are.

22 And on Nitrogen Oxides, particularly during the
23 important summer months, in the summer months where ozone is
24 formed, we certainly are a leader. And we're all making
25 good Nitrogen Oxide reductions.

Laura Andersen, RMR 704-350-7493

1 Q. Mr. Myers, would you turn in your book to what has been
2 marked as Defendant's Exhibit 151?

3 A. I have it.

4 Q. What is Defendant's 151? Take your time. I know these
5 notebooks are a little cumbersome.

6 A. I have it.

7 Q. What is Defendant's 151?

8 A. This is a fact sheet that we put together in early
9 2006, looking back at the emissions of TVA, the coal-fired
10 sources in North Carolina, and the coal-fired sources in
11 Tennessee.

12 Certainly as we were sitting in 2004, moving to 2005,
13 we had seen a large increase -- or we'd seen an increase on
14 the North Carolina system, a decrease in the TVA system.
15 The relative sizes of the two systems differ.

16 And so we tried to develop a fact sheet to get the
17 basic information out here of what is the coal-fired
18 capacity that exists in each state. How much electricity is
19 produced in each state from these facilities. And then what
20 the emission levels are.

21 Q. And what data did you use to generate this chart?

22 A. We used -- for emissions data, we used data from EPA's
23 Clean Air Markets Division, CAMD, as it's often called.

24 We used the Clean Air Markets Division's web site. And
25 then for generation, we used the Department of Energy

Laura Andersen, RMR 704-350-7493

1 Information Administration web site to look at generation.

2 Q. And those sources are considered in the industry to be
3 reliable sources of emissions data?

4 A. Yes. They're the best we know of.

5 Q. Can you describe what the chart tells us?

6 A. Yes. You know we -- first, the TVA system is larger
7 than the North Carolina system. And the North Carolina
8 system is somewhat in capacity larger than the system that
9 exists, coal-fired fleet that exists in Tennessee.

10 But really what's important particularly as we look at
11 emission is how that capacity is utilized. And that's shown
12 in the next column which is generation.

13 Q. The next row?

14 A. Yes, the next row. Thank you.

15 And that is the generation in expressed gigawatt hours.
16 That's the amount of energy that's produced by the different
17 coal-fired fleets. The fleet that sits at TVA. The fleet
18 that's in North Carolina. And the fleet that's in
19 Tennessee. And that shows the energy.

20 You will see with that, that the electrical output from
21 the coal-fired fleet at the Tennessee Valley Authority in
22 2005, was roughly 30 percent greater than that of the fleet
23 that was in North Carolina.

24 As we move down to the next -- as we move down to the
25 next row, we put total tons out there of SO2 emissions that

Laura Andersen, RMR 704-350-7493

1 resulted from that amount of generation.

2 And you will see that North Carolina was kind of a peak
3 year for North Carolina. They were at about 500,000 tons of
4 SO2. The TVA was at 470,000 tons. And system in Tennessee
5 was 266,000 tons of SO2.

6 Q. I think you may have misspoke was TVA at 460,000?

7 A. Yes. I hope that -- I wish that I had said that. Yes.

8 Q. That's okay. That's what I'm here for.

9 A. Yes. TVA was at 460, North Carolina was at 500 and
10 Tennessee was at 266,000.

11 Q. What is the next row, the SO2 rate? What is an SO2
12 rate?

13 A. This is an output rate. Just those two numbers divided
14 together. It basically is an output rate. For the output
15 of electricity is, how much output of SO2 do you emit to
16 generate that much electrical energy.

17 So it is certainly the tons of emission, over the
18 energy, which is expressed in gigawatt hours.

19 And for the TVA system for 2005, we were around four --
20 for every gigawatt hour that we produced, we emitted
21 4.7 tons of emission.

22 In North Carolina in 2005, it was 6.7. And in
23 Tennessee it was around 4.6.

24 You can see the TVA -- with regard to SO2, the TVA
25 system and the Tennessee system, they're comparable. They

Laura Andersen, RMR 704-350-7493

1 have as I've discussed, controls in all states. So our
2 TVA -- our Tennessee plants are somewhat representative.

3 Q. Then there's another row that says SO2 rate, but it's
4 in a different --

5 A. Yes. This is now -- this all comes from the Clean Air
6 Markets Division web site.

7 This is just -- on that -- it is the amount of
8 emissions that you produce. And you have to report your
9 heat input, or how much coal that you burn. The heat energy
10 that's in the coal that you burn, that's expressed in
11 million BTUs.

12 So this is an input basis. For the amount of coal that
13 you intake, how much emissions do you put out. It's often
14 referred to as an input requirement.

15 This is another way of keeping track of emissions in
16 another recognized way.

17 You will see there that we were about -- for one
18 million BTUs of coal burned, we emitted about .9 pounds.
19 North Carolina was at 1.39 pounds. And Tennessee was at
20 .91 pounds per million BTUs.

21 Q. Then the chart switches over to NOx?

22 A. Yes. It gets into NOx. We have two areas of NOx.
23 Both we keep up with it on an annual basis for total
24 emissions.

25 And that again we walk through exactly what we did for

Laura Andersen, RMR 704-350-7493

1 SO2. What the total amount -- total amount of tons. Then
2 compared that to the amount of generation. And came up with
3 an output base where TVA was at about 1.9 tons per gigawatt
4 hour. North Carolina was lower, at about 1.4 tons per
5 gigawatt hour. And Tennessee was right in there at 1.8 tons
6 per gigawatt hour.

7 We further took that down and again expressed it as an
8 input basis, based it on the amount of heat energy that's in
9 the coal that we burned, and we were running at about
10 .37 pounds. Compared to a .3 pounds on North Carolina
11 system, and a .35 in Tennessee.

12 We also put down the ozone season, 5-month ozone
13 season. Because really when we're looking at Nitrogen
14 Oxides, they are important in reducing ozone.

15 So what's very important to Nitrogen Oxide is, how much
16 do you emit during the 5-month ozone season.

17 And there, as we discussed, by 2005, we had an
18 extensive fleet of SCRs that operated in the ozone season,
19 such that when we flipped those on, our emission rates
20 dropped.

21 And so we expressed this in heat input per million BTUs
22 in the ozone season. And those numbers are shown on the
23 bottom row .19, .17 and .16.

24 Q. Is there any reason that TVA's NOx emission rate is
25 slightly higher than North Carolina's?

Laura Andersen, RMR 704-350-7493

1 A. Well certainly we have, of our 11 coal-fired power
2 plants and 59 units, we have several plants that are
3 inherently high NOx emitters.

4 We have some cyclone units that, just due to the nature
5 of that furnace, of that combustion chamber, makes a lot of
6 NOx.

7 So we have some units that are inherently high in NOx.
8 And those are the units that we went first to equip with
9 SCRs.

10 That's one of the reasons particularly on the annual
11 numbers, we produced these numbers.

12 Q. Does TVA plan to operate its NOx controls year-round in
13 starting 2009, despite the vacatur of CAIR?

14 A. Yes. That is true, we do plan to do that. We have had
15 a program headed in that direction for some years now, and
16 we're going to continue on with it.

17 Q. If you would turn in your book to what's been marked as
18 Defendant's Exhibit 153, which is -- just skip one exhibit
19 in that book.

20 What is Defendant's Exhibit 153?

21 A. This is the same types of data that we prepared for
22 2005, updated for calendar year 2006.

23 Q. And since we have been through 2005 in great detail,
24 can you just give us the high points?

25 A. Yeah. Again the -- what we see is that the generation

Laura Andersen, RMR 704-350-7493

1 on the TVA system, compared to 2005 -- we increased. And
2 the North Carolina system had a slight decrease.

3 When it comes down to tons of SO₂, despite -- we had
4 about 40 percent more generation than the North Carolina
5 system.

6 But when you come down to emissions of SO₂, in calendar
7 year 2006, they had -- we were very close. They had
8 461,000 tons. We had 452,000 tons. When we put that on an
9 output basis, their numbers were higher. So for every
10 gigawatt hour of emissions they produced in 2006, they
11 emitted an extra 1.9 tons of SO₂ in calendar year 2006.

12 Q. What's that number?

13 A. That number repeats itself kind of in the SO₂ in the
14 input rate and the same type of thing.

15 Q. What's the NO_x story in 2006?

16 A. Very similar story. Minor changes in 2006. We did add
17 some more SCR capacity. Others added SCR capacity.

18 But basically as you get down, we're higher on an
19 annual basis. But when we get down to the important summer
20 time ozone season NO_x, which is on the bottom row, we're
21 emitting .18 pounds per million BTU. North Carolina
22 coal-fired sources were at .16 pounds per million BTUs. And
23 the fleet of our coal-fired plants in Tennessee was .15
24 pounds per million BTUs. So we're all on a hunt.

25 Q. And TVA is higher on annual NO_x rate, but TVA is not

Laura Andersen, RMR 704-350-7493

1 operating its NOx controls year-round?

2 A. In 2006 we did not. No, we did not.

3 Q. And if you can turn to what's been marked as

4 Defendant's Exhibit number 155.

5 A. Yes.

6 Q. What is this exhibit?

7 A. Again, this is the same type of data, updated for just
8 this past year, for 2007.

9 And with it, as we have walked through with 2006, there
10 has been some slight changing in generation levels. We went
11 down slightly. They went up slightly.

12 Overall emissions of SO2, again, we're on the total TVA
13 system, we're about 30 percent more generation output of
14 electrical generation in 2007. Yet our SO2 emissions were
15 very close. We emitted 374,000 tons, compared to
16 370,000 tons in calendar year '07.

17 When we looked at that rate, there has been -- there
18 has -- as we showed on the previous chart, there's been an
19 improvement in the North Carolina system.

20 So certainly as we track it on the amount of emissions
21 for the amount of energy produced, there's been -- they've
22 closed the gap.

23 But still the gap is really 1 ton -- for every gigawatt
24 hour that was produced in 2007, there was an extra ton that
25 was emitted, in essence, from the North Carolina system.

Laura Andersen, RMR 704-350-7493

1 Our rates differed by, right at 1 ton per gigawatt hour.

2 That follows through down, kind of on the input SO2
3 rate.

4 So you can think about this, you know, one way to think
5 about that is, there is an extra ton for every gigawatt hour
6 and what was produced was about 75,000 gigawatt hours.

7 Q. Of SO2 in North Carolina?

8 A. Yeah. Of SO2 in North Carolina.

9 Q. And the NOx?

10 A. No. We have a different story on annual.

11 In 2007 was the first year of the Clean Smokestacks
12 Provisions requiring annual NOx caps.

13 And certainly you can see that North Carolina achieved
14 dramatic reductions in its annual NOx. And certainly
15 well -- was much lower on an annual basis than we were in
16 2007 on an annual basis.

17 But again the story in the ozone season, is very
18 similar. As our whole fleet is running at a .18, the North
19 Carolina fleet was at a .15. And the Tennessee fleet was at
20 a .14.

21 So we're -- again, last year, all in the hunt, as I've
22 said.

23 Q. And Mr. Myers, since these charts were prepared as
24 exhibits for trial, has there been new data made available
25 for 2008 publicly?

Laura Andersen, RMR 704-350-7493

1 A. Well, that data is -- the latest data that I could find
2 preparing for trial, I went to the CAMD web site and looked
3 at the only data that existed was for the first quarter of
4 2008, its preliminary data for the first quarter of 2008,
5 covering the first three months.

6 And clearly with regard to SO₂, we continued to as
7 reported on pounds per million input, we continue to be
8 lower.

9 Q. If you could now turn to what's the next exhibit which
10 has been marked as Defendant's Exhibit 156.

11 A. Yes.

12 Q. What does this exhibit show?

13 A. These are graphical representations of the emission
14 trends for both, in the top, SO₂ in the upper left, summer
15 time NO_x in the upper right.

16 And it shows graphical representation of the data that
17 we kind of flipped through on the previous charts, of
18 basically, what was the tonnage -- what was the tonnage
19 level of SO₂ emissions from the TVA system, compared to the
20 tonnage emission from the North Carolina system and the
21 Tennessee system.

22 And with regard to SO₂, you can see that from the mid
23 nineties, down through 2007, we had steady systematic
24 reductions of SO₂.

25 Really what this chart shows is about 66 percent

Laura Andersen, RMR 704-350-7493

1 reduction of SO2 from the mid nineties, out through 2007.

2 And then it shows the progress that's in North Carolina
3 here, since 2006 on SO2.

4 And again, a steady systematic reduction in emission
5 from the Tennessee system in regard to SO2.

6 Q. Why did you use 1995 as a starting point?

7 A. The Acid Rain Program of EPA that was passed with the
8 Clean Air Act Amendments of 1990, really kicked into effect
9 with Phase One of the Acid Rain Program in 1995. So that's
10 when I started -- I started this.

11 And then certainly on NOx, we have a, I guess we could
12 call it a similar chart. Everybody has been on a lower
13 trajectory.

14 You can see that compliance with NOx SIP Call, in 2004,
15 everybody was driving down to meet reductions, down to meet
16 a 2004 compliance deadline for the NOx SIP Call and have
17 since held those reductions and made further reductions.

18 Q. Just to be clear, the NOx graph on the upper right is
19 for the ozone season only?

20 A. Yes, it is. It is for the summer time. I've got it
21 labeled, summer time NOx emissions. But that really is to
22 include the 5-month ozone season that's laid out in NOx SIP
23 Call.

24 Q. What about the graph on the bottom?

25 A. Yeah. Now, that's just TVA. It's just showing our,

Laura Andersen, RMR 704-350-7493

1 basically our emissions as we've discussed of our SO2
2 emissions, and our summer time NOx emissions on a graph.

3 Also shown with that is the generation that comes from
4 the same plants showing that over this time our generation
5 has varied with different demands on our system. A somewhat
6 uptick in generation.

7 But over this period, again, as I've described, steady
8 systematic reductions in both SO2 and nitrogen dioxide.

9 Q. Thank you.

10 If you can now turn to what's been marked as
11 Defendant's Exhibit 157. That should be the next exhibit.

12 A. Got it.

13 Q. What is this?

14 A. This is a chart that I prepared, that basically as
15 we've tried to discuss relative progress in emission
16 controls, it was a chart to try to put those two concepts
17 out there in graphical fashion.

18 On one side it shows the amount of electrical energy as
19 depicted in megawatt hours, units of energy, the output of a
20 coal-fired power plant.

21 And on the right side it shows the tons of SO2
22 emission.

23 So back what we said in 2005, kind of the situation
24 existed -- you know, the situation that existed in 2005, was
25 that TVA produced about 30 percent more electricity, energy

Laura Andersen, RMR 704-350-7493

1 from coal-fired power plants. But yet North Carolina
2 emitted 8 percent more SO₂.

3 So it was trying to get -- as we looked, also to try to
4 discuss comparable emissions, this was a way to kind of put
5 it on there. The amount of emissions that you have, that's
6 comparable to the amount of energy that's produced.

7 There you can see that that translates into, basically
8 for every thousand megawatt hours, North Carolina had about
9 two extra tons of emissions.

10 Q. This is 2005?

11 A. Yeah, I meant to say 2005.

12 Q. You did.

13 A. Basically it's at about 2 tons extra per thousand
14 megawatt hours.

15 Q. If you would turn to what's been marked as Defendant's
16 Exhibit 158.

17 A. Yes. Again, in this graphical form, you will see that
18 TVA produced, in 2006, from its coal-fired fleet, produced
19 about 40 percent more electrical generation than did the
20 fleet of coal-fired plants in North Carolina.

21 But then in that year, the emissions were roughly --
22 they were similar. North Carolina emitted 461,000 tons of
23 SO₂, and TVA's compared to about 452,000.

24 So the tonnage were equal, despite TVA producing about
25 forty percent more electrical power from its coal-fired

Laura Andersen, RMR 704-350-7493

1 fleet.

2 Q. If you would turn to what's been marked as Defendant's
3 Exhibit 159.

4 A. Yes.

5 Q. What is this exhibit?

6 A. This is -- this is the data as of -- for last year.
7 And again it shows a continuing that roughly the electrical
8 capacity output for TVA last year was from its coal-fired
9 fleet, about 30 percent more than the coal-fired fleet in
10 North Carolina.

11 And yet again, emissions are comparable. North
12 Carolina was at 370,000 tons of emissions. And we were at
13 374,000 tons of slightly higher than North Carolina.

14 As I stated from the previous graph, if you do the math
15 on that, that's about 1 ton of SO2 emissions for every
16 thousand megawatt hours produced that North Carolina was
17 higher than we were last year.

18 Q. Mr. Myers, what are the comparisons that you've done
19 between North Carolina and TVA systems showing?

20 A. Well, certainly as we've looked at the charts and
21 graphs that show our emission reductions, it shows that TVA
22 has been a leader in the development of the technologies to
23 reduce emissions. We've deployed that technology.

24 Our rate payers have paid a lot of money to have an
25 expansive fleet of controls on. And that we've produced --

Laura Andersen, RMR 704-350-7493

1 we reduced emissions, SO2 emissions have been reduced
2 66 percent on SO2 since the mid nineties, over 80 percent
3 reductions in summer time ozone.

4 We have -- with this investment by our rate payers, we
5 have been one of the leaders in deployment in this
6 technology. And remain a leader in the deployment and
7 operation of emission control equipment, both scrubbers and
8 SCRs.

9 MS. GILLEN: Thank you, Mr. Myers.

10 TVA would like to move into evidence at this time,
11 Defendant's exhibit 151, 153, 155, 156, 157, 158, and 159.

12 THE COURT: Let those be admitted.

13 (Defendant's Exhibit Number 151, 153, 155, 156, 157, 158 &
14 159 having been marked, were received in evidence.)

15 MS. GILLEN: We have no further questions, Your
16 Honor.

17 THE COURT: All right. Questions, Mr. Bernstein.
18 (Please turn to the following page for cross-examination.)

19

20

21

22

23

24

25

Laura Andersen, RMR 704-350-7493

1 CROSS-EXAMINATION BY MR. BERNSTEIN:

2 Q. Good morning, Mr. Myers. I want to clarify one thing
3 before we get started. Several charts we just looked at,
4 you referred to the emissions from North Carolina. I take
5 it to mean you were referring to Duke Energy and Progress
6 Energy from their 14 coal-fired power plants; is that
7 correct?

8 A. Exactly. Yes, sir.

9 Q. And you are aware that those companies are
10 shareholder-owned utilities, and are not owned by the State
11 of North Carolina?

12 A. Indeed.

13 Q. And you are aware, sir, that the Clean Smokestack Acts
14 requires caps on emissions from those plants for SO2
15 beginning in 2009?

16 A. I am aware of that, yes.

17 Q. And do you know that those caps are lower than what
18 Duke and Progress have been emitting for the past few years?

19 A. They are. I do.

20 Q. Would that be an indication that that's North
21 Carolina's conclusion that the emissions of Duke and
22 Progress for last few years have been too high?

23 A. Could you repeat that? I'm not sure I got that. I'm
24 sorry.

25 Q. The legislature's indication that the emissions from

Laura Andersen, RMR 704-350-7493

1 Duke and Progress should be capped at a lower -- at an
2 annual rate that is lower than what those utilities are
3 emitting right now, is an indication by the legislature that
4 those emissions right now are too high?

5 A. That the requirements for 2009 are much lower than
6 their current -- their current emission levels, yes.

7 That's --

8 Q. Okay. Mr. Myers, would you agree that in general the
9 SO2 emission reductions that have been undertaken by TVA
10 over the course of the years, have been driven by compliance
11 with federal and state rules and consent decrees?

12 A. Yes.

13 Q. And would that be the same for Nitrogen Oxide emission
14 reduction?

15 A. In general, but not always.

16 Q. And those reductions were driven first by Title 4,
17 while first by consent decrees?

18 A. Not the emission reductions that I've spoke of, but
19 certainly further back in our history, yes.

20 Q. And the reductions that occurred in the early nineties,
21 the low NOx burners that were put on in regard to compliance
22 efforts with regard to Title 4?

23 A. They were.

24 Q. And the SCRs that you spoke of that were put on in the
25 early 2000 range, were as a result of TVA compliance efforts

Laura Andersen, RMR 704-350-7493

1 with regard to NOx SIP Call?

2 A. Let me -- I'll answer yes, to that.

3 But also to give a full answer, as we comply, our
4 compliance strategies for the NOx SIP Call, we were
5 extremely mindful of the 8-hour ozone in nonattainment areas
6 that existed in our region.

7 So while those assets were used -- the reductions were
8 used for compliance with our regulatory obligations of SIP
9 Call, certainly those compliance plans and where we put
10 those SCRs, and what we were trying to do with that
11 investment, was really, I guess, founded on achieving
12 improvements in 8-hour ozone concentration in our region.

13 Q. When the ozone designations under the 8-hour ozone
14 standards were made, TVA had several plants that were very
15 close to nonattainment; is that correct?

16 A. That's true.

17 Q. And requirements on facilities when they are in
18 nonattainment areas, are more strict than when they are in
19 attainment areas, correct?

20 A. True.

21 Q. So when you say that TVA was mindful of where those
22 attainment areas are, would it be a correct statement, that
23 it is in TVA's interest to try to get those nonattainment
24 areas back into attainment, in order to relieve TVA of the
25 burden of operating in a nonattainment area?

Laura Andersen, RMR 704-350-7493

1 A. Well, a lot of our plants weren't in nonattainment
2 areas. But they were close to nonattainment areas.

3 Certainly some of the coal-fired -- for example, like
4 with Paradise, our first SCR, Muhlenberg County at Paradise
5 was not in a nonattainment area. But certainly there were
6 nonattainment counties around it.

7 Q. For example, the Bull Run plant?

8 A. Yes.

9 Q. In that state, is that the only nonattainment area?

10 A. Yes. Anderson County was a nonattainment.

11 Q. So it was in TVA's interest to lower the NOx at that
12 plant, in order to have that area not being a nonattainment?

13 A. Yes.

14 Q. You spoke a little bit about Clean Air Interstate Rule.
15 I imagine that you're quite familiar with that rule. That
16 rule is a fairly complex rule, wasn't it?

17 A. It was.

18 Q. And there was a series of modeling runs done with the
19 integrated planning model to support that rule?

20 A. I'm aware of them.

21 Q. And there was a series of air quality models run to
22 support that rule?

23 A. There were.

24 Q. And there were models run for different cost scenarios?

25 A. Cost scenarios -- now, I may have missed some of the

Laura Andersen, RMR 704-350-7493

1 subtles in the technical support documents. But I know they
2 were cost effective. They were looking at cost effective
3 parameters so, yes.

4 Q. In any event, it was a fairly complicated rule?

5 A. Yes. And extensive technical support documents that
6 went along with it with a variety of analysis.

7 Q. Are you aware of the volume of comments that were filed
8 with the EPA with regard to those rules?

9 A. I know them to be extensive.

10 Q. And you are aware there were -- several petitions were
11 being brought in the D.C. Circuit with regard to that rule?

12 A. Yes, I am familiar with that.

13 Q. But is it your testimony that the Clean Air Interstate
14 Rule was not a significant driver of emissions reductions?

15 A. Well, the way I characterize the Clean Air Interstate
16 Rule is that it -- I think what I said was, it packaged
17 emission reductions.

18 As EPA's looking at programs to move forward on
19 National Ambient Air Quality Standards, regional haze,
20 mercury and a lot of things, that's been a -- there was an
21 intent to get multi-pollutant legislation out there that
22 would set, what are the obligations for emission reductions
23 from coal-fired utilities.

24 First with the Clear Skies legislative approach. And
25 then it translated into an EPA approach that walked through

Laura Andersen, RMR 704-350-7493

1 with the Clean Air Interstate Rule.

2 And it in essence was a multi-pollutant report. It
3 looked at the obligation of coal-fired sources in the east,
4 to have -- that were emissions here, to set caps to bring
5 those emissions down.

6 And as that came down, it would package them so that
7 EPA could move forward in a variety of other rule making.

8 So, in and of itself, was it the driver or was it the
9 underlying driver. I characterize it as a packaging. But
10 it was a significant rule.

11 Q. In your experience, would EPA engage in a complicated
12 and technical rule making that generated so many extensive
13 comments if it was not an significant law?

14 A. There's extensive comments on a lot of EPA's rules.
15 But this was a very extensive rule. This was a very
16 prominent rule by this EPA.

17 Q. It would have resulted in significant emissions
18 reductions throughout the region, wouldn't it?

19 A. Yes.

20 Q. Now you're familiar with TVA's historical emissions; is
21 that correct?

22 A. Yes, I am. More in the later years.

23 Q. Okay. And you are -- but you are familiar with their
24 emissions going back to say 1980?

25 A. Yes.

Laura Andersen, RMR 704-350-7493

1 Q. And those emissions are put up on, not only the TVA's
2 web site, but the EPA's web site?

3 A. Indeed.

4 Q. If I were to ask you detailed questions about what
5 those year-to-year emission levels, would you be able to
6 give me year-to-year emission levels?

7 A. I don't have year-to-year, but I'm familiar --
8 generally familiar with them.

9 Q. If I were to show you data from Clean Air Markets
10 Division, would that refresh your recollection?

11 A. I'm sure that it would.

12 Q. I want to show you what's marked for identification as
13 Plaintiff's Exhibit 503.

14 Would you recognize this as a document that was put
15 before you at your deposition?

16 MS. GILLEN: I'm sorry, Your Honor. I don't think
17 we have a copy. I am being shown on the screen, but I don't
18 think we've been provided with a copy of this exhibit.

19 MR. BERNSTEIN: (Handing copy to Ms. Gillen.)

20 Your Honor, if you would like I could hand you a
21 paper copy.

22 THE COURT: Yes. A hard copy, that might make it
23 easier.

24 Let's take our mid-morning break and then we will
25 start on this exhibit when we come back in.

Laura Andersen, RMR 704-350-7493

1 (A brief recess was taken in the proceedings; after which,
2 the following occurs:)

3 Q. (Mr. Bernstein) Mr. Myers, when last we left we had
4 taken our first look at Plaintiff's Exhibit 503. You have
5 seen this exhibit previously, haven't you?

6 A. I think I recall it.

7 Q. Now, the numbers that are on this exhibit appear to be
8 accurate to you?

9 A. They appear to be accurate. And this is for the TVA
10 system.

11 Q. Well, let's orient ourselves to the chart here. What
12 is on top appears to be TVA's historical emissions; is that
13 correct?

14 A. Yes.

15 Q. And what's on the bottom appears to be historical
16 emissions of Duke and Progress?

17 A. It does.

18 Q. And all those numbers appear to be correct to you?

19 A. They appear to be correct. They also appear to include
20 emissions from our -- in recent years from our combustion
21 turbines. So it might include both emissions from
22 coal-fired plants and turbines. But it's close. I think
23 it's very close.

24 Q. And in the third column over from the left, that's
25 labeled SO2 rates in pounds per million BTUs. You testified

Laura Andersen, RMR 704-350-7493

1 before, that that's a rate that's commonly used to evaluate
2 rates?

3 A. Yes.

4 Q. And do those numbers appear to be correct?

5 A. They appear to be correct.

6 Q. In the fifth column over we also have NOx rates. And
7 do those also appear to be correct?

8 A. Yes, they do.

9 Q. Now let's take a look back at 1980. In 1980, why do we
10 compare emissions rates of TVA to that of Duke and Progress?
11 Does it appear that the rate for TVA for SO2 is
12 significantly higher than that of Progress and Duke?

13 A. It is.

14 Q. And would you characterize that as an apples to apples
15 comparison of the two systems?

16 A. Yes.

17 Q. And back in 1980, TVA was operating one scrubber at
18 Widows Creek, correct?

19 A. To the best of my knowledge, yes, I think it was one.

20 Q. So even then with TVA operating one scrubber, TVA's
21 emissions were three to four times higher than that of Duke
22 and Progress systems; is that correct?

23 A. They were over three times.

24 Q. Now in your testimony you focused somewhat on the year
25 1995. My understanding of the significance of that was the

Laura Andersen, RMR 704-350-7493

1 beginning of the Acid Rain Program, right?

2 A. Yes.

3 Q. Now at that point in 1995 TVA had six scrubbers
4 operating, correct?

5 A. Yes.

6 Q. And that would be Widows Creek, two scrubbers, Paradise
7 two scrubbers and Colbert two scrubbers -- Cumberland,
8 excuse me, Cumberland, two scrubbers?

9 A. That's right.

10 Q. And those two Cumberland scrubbers, back in 1995, brand
11 new?

12 A. Right. They had just come on line.

13 Q. If you look at 1995, it also appears again, that even
14 with those six scrubbers, TVA's emissions were at that time
15 still higher than Duke and Progress' emissions with regard
16 to SO2 on a rate basis; is that correct?

17 A. That's correct.

18 Q. Finally in 2001, it appears that TVA finally caught up
19 on a rate basis with regard to SO2; is that correct?

20 A. Yes.

21 Q. So at least according to this chart and previous
22 testimony, it took TVA 21 years to catch up to Duke and
23 Progress, at least?

24 A. I'm having difficulty with the "catch up", but, yes,
25 the environmental performance was equal in -- as we've said

Laura Andersen, RMR 704-350-7493

1 in -- yes.

2 Q. If we took this chart back to the 50s and 60s, would
3 you expect TVA's emissions to be, on a rate basis, to be
4 lower than TVA's?

5 A. I really don't have knowledge much past '77 of TVA's
6 emissions. But I would assume that, you know, they would
7 have been -- we would have burned available coals, that they
8 would have been, on a rate basis, relatively high in those
9 years.

10 Q. Okay. The emissions over the years is important
11 because acid deposition is cumulative in its effects, is it
12 not?

13 A. Yes.

14 Q. So earlier reductions are important with regard to SO2
15 and acid deposition?

16 A. Yes.

17 Q. And TVA knew about the acid rain phenomenon in the late
18 seventies, didn't they?

19 A. I would assume.

20 Q. Are you familiar with TVA's web site?

21 A. Yes.

22 Q. And are you familiar with the -- there's a section on
23 the web site that discusses acid rain?

24 A. Yes.

25 Q. I want to show you what's marked Plaintiff's Exhibit

Laura Andersen, RMR 704-350-7493

1 508.

2 May I approach, Your Honor?

3 THE COURT: Yes.

4 Q. (Mr. Bernstein) If you go to page four, I believe, of
5 that document, under "Acid Rain Monitoring", can you read
6 the first sentence there?

7 A. Yes. "Acid rain emerged as a major environmental issue
8 in the late seventies and in the early eighties."

9 Q. And it would be safe to assume that there was a major
10 environmental issue emerging, TVA would have been aware of
11 that?

12 A. They would have.

13 Q. So we can conclude that TVA knew about acid rain back
14 in the late seventies and early eighties?

15 A. Oh, in the late seventies and early eighties, yes.

16 Q. Yet throughout the 1980s and into the early nineties,
17 TVA's emissions didn't reduce, did they?

18 A. There's some reduction from the eighties to the
19 nineties.

20 Q. And what are you basing that on?

21 A. I guess the chart that you provided me showed moving
22 from basically 1.6 million tons down to 1.1 million tons.

23 Q. From the time TVA completed its compliance with consent
24 decrees of the late seventies, to the time that TVA began
25 its compliance efforts for acid rain, did TVA engage in any

Laura Andersen, RMR 704-350-7493

1 construction of emission control devices for SO2?

2 A. I'm not trying to avoid the question, I'm just wanting
3 to make sure I understand it.

4 I know that we built scrubbers in the Widows Creek in
5 the seventies, and then we built scrubbers in the eighties
6 at Paradise. So I hate to ask you to --

7 Q. Were the scrubbers at Paradise completed in early
8 eighties?

9 A. Yes.

10 Q. Between the -- and those were for compliance with the
11 consent decrees, correct?

12 A. I don't know. I don't know.

13 Q. Between the completion of the scrubbers at Paradise and
14 the TVA embarking on its compliance efforts for Title 4,
15 there were no major capital investments in order to reduce
16 SO2, were there?

17 A. That's correct.

18 Q. Even though all that time TVA knew that acid rain was a
19 problem?

20 A. We are aware of the issue.

21 Q. If you'll take a look back at the chart, I want to talk
22 about TVA's emissions between the year 2000 and the year
23 2006. Can you confirm for each one of those years TVA
24 emissions exceeded a total of 430,000 tons of SO2?

25 A. Yes.

Laura Andersen, RMR 704-350-7493

1 Q. Let's also take a look at the chart, let's talk about
2 NOx for a second.

3 TVA's NOx rate, its overall NOx rate, is higher than
4 the NOx rate for Duke and Progress Energy for every year on
5 this chart, isn't it?

6 A. Yes.

7 Q. And TVA's NOx rate was higher in 2007?

8 A. Its annual NOx rate.

9 Q. And you would expect it to be higher in 2008, wouldn't
10 you?

11 A. Annual NOx, yes.

12 Q. It was your testimony that TVA's emissions from its
13 Tennessee plants, is lower than -- or roughly equivalent or
14 possibly slightly lower than Duke and Progress with regard
15 to summer ozone season?

16 A. Yes. They are right on top of each other.

17 Q. And the summer ozone season is five months of the year?

18 A. It is.

19 Q. And Tennessee plants represent about 50 percent of the
20 TVA system, by capacity?

21 A. I would -- I think that would be close.

22 Q. Okay. So with regard to TVA's NOx rate being lower for
23 the summer months, we're talking about half their system for
24 less than half the year?

25 A. Yes.

Laura Andersen, RMR 704-350-7493

1 Q. TVA can run SCRs year-round, can't they?

2 A. We are getting them in the position to be able to do
3 that.

4 Q. But they can do that prior to 2009; isn't that true?

5 A. I'm not sure that all of them could, but certainly
6 we're going through winterizing operations, getting them
7 ready for a full annual operation in January '09, yes.

8 Q. Mr. Myers, I'm going to hand you the original copy of
9 your deposition, with the court's permission.

10 THE COURT: All right, sir.

11 Q. (Mr. Bernstein) Mr. Myers, let's look at page 66. On
12 the top of that page, Mr. Myers, does it appear that I asked
13 you, "It should be possible for TVA to run these SCRs
14 year-round prior to 2009, shouldn't they?"

15 A. Yeah, possible.

16 Q. And your response was, "I would think so"?

17 A. Yes.

18 Q. So TVA can run those year-round now; isn't that true?

19 A. Yeah. To the best of my knowledge, I think now in 2008
20 we can.

21 Q. But you're not running them year-round, are you?

22 A. No we're not.

23 Q. Okay. And you're not doing that because you're not
24 required to; isn't that correct?

25 A. It hasn't been in our plan.

Laura Andersen, RMR 704-350-7493

1 Q. Why hasn't it been in your plan?

2 A. Certainly our plan was -- was to comply. And certainly
3 we set up programs to achieve compliance. And we looked at
4 what programs that would -- what that would do, and those
5 seem consistent. And that's what we based our plans on.

6 Q. In the Clean Air Industry Rule, EPA did some modeling
7 for particulate matter, correct?

8 A. They did.

9 Q. And based on that modeling, EPA wrote a rule for
10 required NOx reductions year-round, in order to mitigate
11 particulate matter, correct?

12 A. They did.

13 Q. And EPA is the expert federal agency with regard to the
14 Clean Air Act and Clean Air issues, is it not?

15 A. It is.

16 Q. So it's EPA's opinion that those NOx reductions,
17 outside of the ozone season, are important for particulate
18 matter, correct?

19 A. I mean, our view of it is that NOx emissions have a
20 very minor role in particulate formation.

21 When you look at what drives formation, what we're
22 trying to go is PM 2.5, fine particulate matter.

23 When you really look at what's driving the overall air
24 quality improvement, it's SO2.

25 Now, is there a minor component from NOx; yes. And as

Laura Andersen, RMR 704-350-7493

1 such, we are looking at that. And there is a minor
2 improvement in particulate from annual NOx -- operation of
3 NOx and we're looking at that.

4 Q. But you're not planning on running your SCRs year-round
5 in advance of 2009, are you?

6 A. No we're not.

7 Q. Now, last year TVA ran its SCRs early; is that correct?

8 A. Yes we did.

9 Q. But that was to accumulate credits for CAIR, wasn't it?

10 A. No, not necessarily. It did -- that operation did earn
11 some early reduction in what would have been early
12 reductions in the CAIR program. But we really did it for
13 ozone control.

14 Certainly as we -- as I discussed with the park -- you
15 know, that we were requested by the park on them showing
16 some data with some high ozone days in the park, we ran
17 those for that purpose. And we ran them well in excess of
18 what we earned in early reduction credits.

19 Q. Mr. Myers, I would like to refer you to page 58 of your
20 deposition.

21 At page 58, I asked you at that point why you ran those
22 SCRs in the April timeframe.

23 And your answer was, "We've done that to gain early
24 reduction credits in the Clean Air Interstate Rule as
25 provided for in the Clean Air Interstate Rule"; isn't that

Laura Andersen, RMR 704-350-7493

1 correct?

2 A. Yeah, and that is true. I might add that, if we had
3 chose them just for early reduction credits, we could earn
4 them much more cheaply at our Allen facility, than we could
5 our Bull Run and Kingston facility that are located at the
6 park.

7 As you are aware, Allen is a cyclone unit with high NOx
8 rate. And as such, if we were earning them on a strictly
9 dollar basis for compliance purpose with the Clean Air
10 Interstate Rule, looking at a dollar per ton, we could have
11 earned those early reduction credits at Allen, cheaper than
12 we could of at either Bull Run or Kingston.

13 And such, we could have achieved the full Tennessee
14 early reduction compliance at Allen.

15 However, we chose to operate those units at Bull Run
16 and Kingston for ozone. Now we did -- we did run them and
17 we did -- we were set up to get early reduction credits for
18 them. But where we ran those units, was based on what it
19 would do on air quality, more so than a straight economics.

20 Q. But you didn't point that out at your deposition, did
21 you?

22 A. I did not.

23 Q. And your answer was simply, we've done that to gain
24 early reduction credits in the Clean Air Interstate Rule, as
25 provided for by the Clean Air Interstate Rule, right?

Laura Andersen, RMR 704-350-7493

1 A. That's what it appears here on page 58, yes. And that
2 was my answer.

3 Q. Okay. All right. I want to -- we took a tour of your
4 facilities before. And I enjoyed it so much I would like to
5 do it again. I would like to do it a little differently
6 this time as you probably imagine.

7 A. We would welcome it.

8 Q. I would like to put on the screen what we marked as
9 north Carolina Exhibit 505, that page you used to
10 demonstrate your controls?

11 A. Yes.

12 Q. Does this look like the document that's been admitted
13 into evidence as Defendant's 2?

14 A. With some minor modifications.

15 Q. Would those be nonsubstantive modifications?

16 A. I would think so.

17 Q. Mr. Myers, TVA announced scrubbers at the Colbert,
18 Kingston, John Sevier and Bull Run plants in the year 2002,
19 correct?

20 A. We announced we would be deploying those
21 technologies -- that those were the plants where we would be
22 deploying our SO2 reduction technology, yes.

23 Q. TVA did not break ground on a single one of those
24 scrubbers until the CAIR rule was finalized; isn't that
25 correct?

Laura Andersen, RMR 704-350-7493

1 A. I don't know. I don't know when we broke ground.

2 Q. Have you broken ground yet on the John Sevier scrubber?

3 A. No, we have not.

4 Q. Have you broken ground yet on the Colbert scrubber?

5 A. No, we have not. I do know we signed the contract well
6 in advance of CAIR's -- actually, it was still in draft
7 form.

8 MR. BERNSTEIN: If we could have just a minute,
9 Your Honor.

10 (Pause.)

11 Q. Mr. Myers, I would like to show you what has been
12 admitted into evidence as North Carolina's 443.

13 Gary, if you will show page 11.

14 Now, Mr. Myers, do you see at the bottom of the page
15 where there is a request that TVA admitted that it broke
16 ground on the construction of the FGD at the Bull Run
17 facility in 2005?

18 A. Yes.

19 Q. And TVA's response to that is admitted; is that
20 correct?

21 A. Yes. Yes.

22 Q. Then with regard to request number 27, can you read
23 that for the record?

24 A. Yes. That -- that was 27?

25 Q. Move it up so we can see request 27.

Laura Andersen, RMR 704-350-7493

1 A. Yes. Admit that TVA broke ground on construction of
2 the FGD at Kingston fossil plant in 2006. And the response
3 was admitted.

4 Q. And the Clean Air Interstate Rule was finalized early
5 in 2005, correct?

6 A. Yes.

7 Q. And so does it appear that TVA did not break ground on
8 the Kingston and Bull Run scrubbers until after CAIR was
9 finalized?

10 A. Breaking ground, it appears true.

11 Q. Is it true that all of those -- all of those scrubbers
12 were scheduled for compliance with the Clean Air Interstate
13 Rule?

14 A. Certainly the emission reductions from those programs
15 would have allowed us to continue with a self-compliant
16 strategy with the Clean Air Interstate Rule.

17 And to do so, on a self-compliant strategy, and really
18 satisfy our obligations under a lot of other rules like PM
19 2.5, we had certainly in our regions some fine particulate
20 nonattainment areas.

21 And certainly as we look at our contribution to that,
22 building those sources was important to move forward in
23 those regards.

24 Q. Do you know what the current schedule is for the
25 Colbert scrubber is?

Laura Andersen, RMR 704-350-7493

1 A. It's currently under design and review right now, no
2 date announced.

3 Q. No date announced.

4 With regard to the Sevier scrubber, Kingston scrubber
5 and Bull Run scrubber, can you tell me how many of those
6 scrubbers are operating now?

7 A. In operation?

8 Q. Yes.

9 A. None.

10 Q. You announced SCRs on Colbert and Sevier plants
11 concrete?

12 A. We have an SCR on Unit 5 at Colbert.

13 Q. But you announced SCRs on Units 1 through 4 as well?

14 A. Appears we have.

15 Q. And you have announced SCRs for the four units at John
16 Sevier?

17 A. Yes we have.

18 Q. What is this current schedule for the scrubbers and
19 SCRs at Sevier?

20 A. Yes. Those SCRs at John Sevier, will be constructed
21 after -- like I testified once we -- once we build the
22 scrubber and make physical arrangements to have places
23 available in the John Sevier plant for those scrubbers, they
24 will be installed in -- one will be installed in 2014 -- in
25 mid 2014 -- be installed in 2014, ready for an operation on

Laura Andersen, RMR 704-350-7493

1 early 15. And then the other ones coming in some months
2 later.

3 Q. Mr. Myers, can I ask you what document you just
4 referred to?

5 A. It was my Exhibit 2.

6 Q. And you have your notes on there with regard to when
7 things are in operation?

8 A. I do.

9 Q. How many of those SCRs that we just talked about are
10 operating right now, the four at Sevier and Colbert?

11 A. None.

12 Q. Now you've planned some fuel switches as well, to
13 potentially reduce SO₂; is that correct?

14 A. That's correct.

15 Q. But there's nothing requiring you to engage in those
16 fuel switches, is there?

17 A. Other than progress in regional clean air improvements.

18 Q. Restate the question. Are there any requirements that
19 will make you engage in those fuel switches?

20 A. No. We certainly see that the regulatory future will
21 be more constricted in the future. And as you've seen what
22 we have had with steady systematic reductions, we see the
23 need to continue those reductions. We see the need with PM
24 2.5, SIP, with regional haze, with a variety of other
25 things, that it's going to be important to lower SO₂, even

Laura Andersen, RMR 704-350-7493

1 in anticipation of more constricted regulatory future.

2 So we're planning to systematically reduce our SO2. To
3 be in a position to comply with what future rules come out
4 and to meet regulatory requirements.

5 Q. Clean Air Interstate Rule was one of those regulatory
6 requirements, wasn't it?

7 A. It certainly was.

8 Q. And we don't have that rule any more, do we?

9 A. It's been vacated by the Court. I don't think the
10 mandate's in. But it certainly appears that it's vacated --
11 it appears to be vacated.

12 Q. And there have been new National Ambient Air Quality
13 Standards before PM 2.5, 24-hour and ozone 8-hour, correct?

14 A. There have been.

15 Q. And there are lawsuits pending with regard to those as
16 well?

17 A. Yes.

18 Q. So the certainty of those regulatory requirements is
19 not so certain?

20 A. Litigation -- you know, as in all rules, litigation is
21 there. We certainly see that there -- there's uncertainty,
22 but we think they're coming. We think that EPA will do what
23 it said it would do on those dates, naming nonattainment
24 areas for the new 8-hour ozone standard in March --
25 March 2010. We're using that as a pretty good certainty.

Laura Andersen, RMR 704-350-7493

1 Q. You indicated, Mr. Myers, on the chart that's before
2 you, that there were several units burning which you have
3 called low sulfur coal; is that correct?

4 A. Yes.

5 Q. The John Sevier plant is burning what's called Central
6 Appalachian 1.2; is that correct?

7 A. Yes.

8 Q. Th Bull Run plant burning is Central Appalachian 1.2;
9 is that correct?

10 A. I think it was closer to a 1.3 last year.

11 Q. Okay. That's fine. Now Kingston's burning a blend,
12 right?

13 A. They are burning a blend.

14 Q. And the equivalent rate of that blend is somewhere in
15 the area of 1.2, is it not?

16 A. To the best information I have of last year, we were
17 right around a 1.0 pounds per million BTUs.

18 Q. Now none of those are really low sulfur coal; isn't
19 that correct?

20 A. We think of them as low sulfur coal.

21 Q. You sure you don't think of them as medium sulfur coal?

22 A. No. Not in our nomenclature.

23 Q. Mr. Myers, I want to refer you to page 43 of your
24 deposition. At that point I would like you to read page 43,
25 lines 14 to 17?

Laura Andersen, RMR 704-350-7493

1 A. Yes.

2 So, yeah, this was in my testimony, and the lines you
3 requested were?

4 Q. The sentence that says, so coming across the system?

5 A. So coming across the system, John Severe burns an
6 Appalachian Coal, a relatively medium sulfur coal, around a
7 1.4, I think, but in that range. Then you come across our
8 systems pretty much --

9 Q. That's sufficient.

10 A. Yeah.

11 Q. Thank you.

12 A. Yeah.

13 Q. So the coal that's being burned at John Sevier, which
14 at that point you termed a 1.4 coal, the things in that
15 range, you called a medium sulfur coal, correct?

16 A. Yeah. Generally we think of -- if you're 1.2 and
17 below, you're low sulfur. 1.2, above that up, to two and a
18 half pounds, kind of -- or 2 pounds, a medium sulfur.
19 That's kind of the range we see.

20 Q. At Kingston you said was a 1.3 last year?

21 A. One -- Bull Run.

22 Q. Bull Run was 1.3?

23 A. Yes.

24 Q. So that's above 1.2?

25 A. Yes.

Laura Andersen, RMR 704-350-7493

1 Q. And that's medium sulfur?

2 A. I guess, yes.

3 Q. So that's not a low sulfur?

4 A. That's not a low sulfur.

5 Q. And the other ones burned at John Severe, 1.2, would
6 that be the absolute high end of low sulfur coal?

7 A. Yes. I believe I stated it was -- last year it burned
8 at 1.16 pounds per million.

9 Q. And you're burning these coals to meet Title 4, and
10 to -- well, eventually Clean Air Interstate requirements
11 that were vacated; isn't that correct?

12 A. Yes.

13 Q. So if you wanted to stop burning low sulfur coal at any
14 particular plant, you could switch to a higher sulfur coal,
15 right?

16 A. That's a complicated -- that's a complicated statement.
17 You know, obtaining higher sulfur coals at all plants,
18 but certainly we have fuel flex -- we have some fuel
19 flexibility.

20 Q. There's nothing in the regulatory requirements that
21 would prohibit you at any particular plant, to switch to a
22 higher sulfur coal?

23 A. That's true.

24 Q. So if there was a scrubber installed at Bull Run,
25 reducing Bull Run's emissions, you could switch to a higher

Laura Andersen, RMR 704-350-7493

1 sulfur coal at John Sevier?

2 A. Regulatory -- yes.

3 Q. Emissions still being equal, you still meet your Title
4 4 requirements, correct?

5 A. That's possible.

6 Q. And it's possible that your emissions would not go down
7 at all, as between those two plants?

8 A. Under that scenario.

9 Q. Now I think the last plant that I want to talk about is
10 Shawnee.

11 Shawnee is a little blue dot there, and it says,
12 existing scrubber. But it doesn't really have a scrubber,
13 does it?

14 A. Yeah. That's been a hard one to characterize. As I
15 stumbled over the name of a AFBC unit, it's a unit that's
16 inherently low SO2. So we've invested in technology to
17 reduce SO2 at it. And as we've come across, we've also
18 counted it at times as a scrubbed unit.

19 Q. Do you know its emission rate?

20 A. I don't.

21 Q. Do you know the emission rate at Cumberland?

22 A. I do.

23 Q. And what is that?

24 A. Cumberland on the SO2 emission rate --

25 Q. Cumberland's a scrubbed unit?

Laura Andersen, RMR 704-350-7493

1 A. Yeah, it's a scrubbed unit. It's about a 0.19 pound
2 per million BTU.

3 Q. And the emissions from Shawnee, the atmospheric flue
4 out there is significantly higher than that?

5 A. It is higher than that.

6 Q. So it's not meeting the level of a 13-year old
7 scrubber?

8 A. Correct.

9 Q. Essentially, Mr. Myers, your fleet-wide SO2 emissions
10 are set according to your SO2 requirements?

11 A. Our fleet-wide SO2 limits are set by our Clean Air
12 Plan. And that plan has a number of factors in it.
13 Certainly regulatory obligations, fuel supply, and a variety
14 of factors.

15 Q. Your Clean Air Plan is not an enforceable document,
16 correct?

17 A. That's true.

18 Q. So your fleet-wide emissions SO2 -- your fleet-wide SO2
19 emissions, are ultimately capped by your Title 4
20 requirements?

21 A. In terms of being capped, yes.

22 Q. And Title 4 is a cap and trade program?

23 A. It is.

24 Q. And when I took your deposition last year, you were not
25 aware of any policy of TVA's that prohibited it from buying

Laura Andersen, RMR 704-350-7493

1 more credits than it sells?

2 A. Right. At that time.

3 Q. And now, when this lawsuit is pending, now TVA has such
4 a policy?

5 A. Part of our strategic plan, our 2007 strategic plan.

6 Q. Thank you. I would like to talk to you now about your
7 Memorandum of Undertaking, which I believe was Defendant's
8 Exhibit 167.

9 A. Yes.

10 Q. Let's take a look at the third physical page, which is
11 the first page of the Memorandum of Undertaking?

12 A. Yes.

13 Q. I would like to direct your attention to the fourth
14 whereas clause.

15 Does this whereas clause indicate that there are a
16 number of air quality problems that require special
17 attention, and that one of those issues is continued
18 maintenance of air quality standards in large urban areas,
19 in cities of Tennessee?

20 A. Yes.

21 Q. But at the time EPA, excuse me -- now I've done it.

22 At the time TVA signed that document, several of the
23 areas in Tennessee were not actually maintaining their
24 standards?

25 A. All right. Now in 2000, I'm trying to think through.

Laura Andersen, RMR 704-350-7493

1 Most everywhere in 2000 was. I know Memphis had some
2 issues. But the new 8-hour ozone standard, I guess my
3 recollection is, that that's when the nonattainment areas
4 popped up.

5 That certainly at the time of 2000, I think most of the
6 area in our service region was in attainment.

7 Q. But the 8-hour standard was coming into play at that
8 time?

9 A. It was in play.

10 Q. And ultimately, several areas in the State of Tennessee
11 were designated nonattainment?

12 A. Yeah. Some three years -- three or four years after
13 this document.

14 Q. And during this -- when this document was signed, the
15 date it was available, that would have showed that those
16 areas would eventually be nonattainment by an 8-hour
17 standard?

18 A. Yes. I think that's what this whereas indicates that,
19 you know, we saw some -- we saw that there was issues with
20 attaining that level -- maintaining current standard and
21 looking at the new standard, yeah.

22 Q. Now, turning your attention again to this whereas
23 clause, one other item that's noted as an important issue
24 was visibility in the Great Smoky Mountains National Park,
25 correct?

Laura Andersen, RMR 704-350-7493

- 1 A. It was.
- 2 Q. Let's go back to nonattainment, actually.
- 3 The greater Knoxville area is still a nonattainment
- 4 area for ozone at the old standard, correct?
- 5 A. When you say the old standard?
- 6 Q. The eighty-five part per billion standard?
- 7 A. Yes, the 1987 standard. It achieved the 1-hour
- 8 standard -- it achieved the 1-hour standard, but it is
- 9 currently not attainment for the '97, yeah.
- 10 Q. I guess the '87 standard would be the very old
- 11 standard?
- 12 A. Yeah, the very old standard.
- 13 Q. The greater Knoxville area nonattainment area under the
- 14 old standard, includes part of the Great Smoky Mountains
- 15 National Park, does it not?
- 16 A. It does.
- 17 Q. And John Sevier plant, the NOx emissions at the John
- 18 Sevier plant, impact that nonattainment area, correct?
- 19 A. I would assume some emissions do.
- 20 Q. And John Sevier does not have any SCRs on it right now?
- 21 A. It doesn't have SCRs. As we said, Unit 1 as an SNCR
- 22 type of equipment, the H-E-R-T, Unit 1.
- 23 Q. So you have one unit control at John Sevier with a what
- 24 you call a mid-level NOx control?
- 25 A. Yes.

Laura Andersen, RMR 704-350-7493

1 Q. Under the new standard, the 75 part per billion
2 standard, the area near John Sevier is a nonattainment
3 standard?

4 A. (Indicating.)

5 Q. The area near the John Sevier plant is not attaining
6 currently, the new standard?

7 A. I haven't reviewed that data, but currently the 75
8 standard is going to be a challenge for that area.

9 Q. Now, under the 75 part per billion standard, also the
10 north central area of Tennessee would not be attaining the
11 standard right now either, would it?

12 A. The north central part of Tennessee?

13 Q. Um-hmm.

14 A. The area above Nashville?

15 Q. Yes.

16 A. Yes.

17 Q. That area is not currently attaining the 75 parts per
18 billion standard?

19 A. Well, there is not an attainment demonstration. But
20 it's monitoring levels above what would be the 75 standard.

21 Q. So the people in that area, are breathing in air that
22 is not attaining currently the 75 parts per billion
23 standard?

24 A. The ambient air quality -- the ambient air up there
25 that's being measured in those monitors is above the new --

Laura Andersen, RMR 704-350-7493

1 the 75 part per billion standard.

2 Q. TVA's Gallatin and Johnsonville plants are near that
3 area, are they not?

4 A. They are.

5 Q. And Gallatin plant does not have a SCR and or SNCR,
6 does it?

7 A. It does not.

8 Q. And of Johnsonville's ten units, two have the SNCR and
9 none have the CR?

10 A. Correct.

11 Q. Now under the 75 parts per billion standard, the north
12 central area of Alabama is also not attaining, correct?

13 A. Again, I would prefer to say measuring above the
14 standard, rather than getting it into an attainment.

15 Q. That's fine. It is currently above the standard?

16 A. Yeah.

17 Q. Whether designated or not?

18 A. Yeah, that's right. Without the designation, yes.

19 Q. How many Colbert's five units have SCRs?

20 A. The largest, Unit 5.

21 Q. And only two of Widows Creek eight units have SCRs,
22 correct?

23 A. Again, the largest two.

24 Q. And you would expect those units, the NOx emissions
25 from those units to have an influence on ozone areas that we

Laura Andersen, RMR 704-350-7493

1 just spoke about?

2 A. Yes.

3 Q. Now the Nashville area was nonattainment under the old
4 standard until about three months ago, correct?

5 A. Well, it was, you know, it was much like areas here in
6 North Carolina. It was designated nonattainment. But the
7 effective date of that designation was stayed, due to its --
8 due to filing and corrective implementation of a --

9 Q. Of early action compact?

10 A. Yes. Right.

11 Q. But it received that treatment because its air quality
12 measured above the standard?

13 A. It --

14 Q. There would have been no reason to do an early action
15 compact in that area if it was in attainment, correct?

16 A. You are correct.

17 Q. And the current design value for that area is only
18 slightly below the 85 part per billion standard, correct?

19 A. It is.

20 Q. So it's right on the cusp of nonattainment?

21 A. It is.

22 Q. Under the right weather conditions, it would be right
23 at nonattaining -- it would be nonattaining again, wouldn't
24 it?

25 A. It showed steady improvements in the area. But it

Laura Andersen, RMR 704-350-7493

1 is -- it is close to the 84 limit.

2 Q. Now, if there was an effort to cut 20 parts per billion
3 of ozone from that area, that would be a good thing to do,
4 wouldn't it?

5 If there were a way to reduce that ozone by 20 parts
6 per billion?

7 A. Getting pretty low, but yes, I mean --

8 Q. That would certainly help it maintain its attainment
9 status, would it not?

10 A. Certainly with regard to the attainment status, that
11 would be a good thing.

12 Q. And it would certainly help it attain and maintain new
13 standards, wouldn't it?

14 A. It would.

15 Q. And it would be a general benefit to the folks in that
16 area, wouldn't it?

17 A. The air quality benefit would be.

18 Q. The air quality benefit would be. Are you familiar,
19 sir, with the Environmental Research Center of the Tennessee
20 Valley Authority?

21 A. I am.

22 Q. And what does the Environmental Research Center do?

23 A. Well, its morphed into several different things, but
24 it's been a lot of our research arm.

25 Q. Does that research arm put out studies?

Laura Andersen, RMR 704-350-7493

1 A. They do.

2 Q. Are you aware of a study performed with regard to
3 Gallatin and Johnsonville plants?

4 A. Not --

5 Q. Excuse me, Gallatin and Cumberland plants?

6 A. No, I'm not.

7 MR. BERNSTEIN: Your Honor, request permission to
8 hand this up.

9 Mr. Myers, I would like to ask you if you are
10 familiar with the conclusion of this study that the ozone
11 impact of Gallatin on Nashville, can exceed that of
12 Cumberland. And unfavorable conditions transport -- of the
13 transport of the chemical conditions, both power plants can
14 contribute as much as 50 parts per billion of excess ozone
15 to the urban area, raising local peak levels well in excess
16 of 100 parts per billion?

17 A. I see that in the report, and now I am familiar with
18 this report.

19 Q. Does this report appear to be a journal -- an article
20 that was published in the Journal of Geophysical Research?

21 A. It does.

22 Q. Does this report appear to be an article written by the
23 Environmental Research Center of the Tennessee Valley
24 Authority, Muscle Shoals, Alabama?

25 A. It does.

Laura Andersen, RMR 704-350-7493

1 Q. Does it appear that the date of this report is
2 September 20, 1988?

3 A. It was published, yes, it looks like that was the date,
4 yes.

5 Q. And if you will turn to page 22613 of this document.

6 A. Yes.

7 Q. Does it appear there in the first column under
8 "Conclusions", about the third line, that at that time the
9 Nashville area was a nonattaining area?

10 A. Under part five, "Conclusions".

11 Q. About the third or fourth line.

12 A. Yes. Yes. The Nashville urban ozone nonattainment
13 area. Right. That was associated with the 1-hour standard
14 that we discussed, the very old standard.

15 Q. And considering that this report was published in the
16 Journal of Geophysical Research and performed by The
17 Environmental Research Center of the Tennessee Valley
18 Authority in Muscle Shoals, Alabama, indicates that these
19 plants can have an impact, as much as 50 parts per billion
20 excess ozone, to this urban area, which was in
21 nonattainment. Can you tell me what Tennessee Valley
22 Authority has done to rectify this situation?

23 A. Yes. Certainly our Cumberland plant, we put state of
24 the art selective catalytic reduction systems on. As I
25 previously testified, those units were in excess of

Laura Andersen, RMR 704-350-7493

1 \$160 million a piece.

2 Then at Gallatin, while it doesn't have an SCR, it's
3 performance level, right now current performance level with
4 Nitrogen Oxide, is down around .15 pounds BTU.

5 This level is at a level lower than what our initial
6 SCRs came out. It was a level really conceived in this time
7 frame as what the performance level in SCR was. Since then,
8 SCR's performance has improved.

9 That to say it's a very low level. Gallatin produces
10 NOx at a very low level. We have done that through the
11 combination of low NOx burners and fuels.

12 Q. Mr. Myers, are you aware that the Clean Air Interstate
13 Rule final level for NOx, was set at an equivalent level of
14 .125 pounds per billion BTU?

15 A. I am aware that was the 2015 -- that was the allocation
16 basis for the 2015 budget.

17 Q. And that was a -- that was an average rate for the
18 entire coal-fired fleet in the Eastern United States?

19 A. It was.

20 Q. And so that indicates that it's possible for plants to
21 achieve significantly lower than that rate, correct?

22 Let me ask you this way, are you aware that modern SCRs
23 can achieve rates around .07 pounds per million NOx per
24 million BTU?

25 A. I am.

Laura Andersen, RMR 704-350-7493

1 MR. BERNSTEIN: We would like to mark this study
2 as Plaintiff's Exhibit 491, and ask it be admitted.

3 May I approach with a sticker for the document?

4 THE COURT: Yes, sir.

5 MR. BERNSTEIN: Thank you.

6 (Plaintiff's Exhibit Number 491 having been marked, was
7 received in evidence.)

8 Q. (Mr. Bernstein) Mr. Myers, I want to talk about PM
9 nonattainment areas for a second.

10 The Chattanooga area, is that nonattainment for
11 particulate matter?

12 A. Yes, for fine particulate matter.

13 Q. Fine particulate. And that's right down wind from your
14 Widows Creek Plant; is that correct?

15 A. Not far from our Widows Creek.

16 Q. And in fact, the Widows Creek plant itself is ensconced
17 in a very small nonattainment area, is it not?

18 A. It is.

19 Q. We won't go into the reasons for that, but it is what
20 it is.

21 And Widows Creek has six units that are NOx drive,
22 correct?

23 A. That's true.

24 Q. And you would expect SO2 reductions at the Widows Creek
25 plant to benefit Chattanooga PM nonattainment area, would

Laura Andersen, RMR 704-350-7493

1 you not?

2 A. They would have some benefit.

3 Q. Now, the Knoxville area is also nonattainment for
4 particulate matter; isn't that correct?

5 A. Yes, for fine particulate matter.

6 Q. And the Knoxville area, the nonattainment area
7 encompasses both Bull Run and Kingston?

8 A. It does.

9 Q. And neither one of those plants is currently scrubbed,
10 correct?

11 A. No.

12 Q. I would like to now direct your attention to what's
13 been admitted into evidence as Plaintiff's 11.

14 Are you familiar with this document, sir?

15 A. I am generally familiar that it exists. And I have
16 read certain pieces of it.

17 Q. Were you more familiar with it in March of 2005?

18 A. I was more familiar with it back in those days, yes.

19 Q. I want to direct your attention to -- can you tell me
20 what this document is?

21 A. It is the technical support document published by the
22 Environmental Protection Agency, that supports the
23 development of their Clean Interstate Rule making.

24 MR. BERNSTEIN: Your Honor, you can find this
25 document in Plaintiff's Trial Binder 2. And I apologize for
 Laura Andersen, RMR 704-350-7493

1 not directing that to you sooner.

2 THE COURT: All right. I have it. Thank you.

3 Q. (Mr. Bernstein) Mr. Myers, we're going to look at --
4 Mr. Myers, I want to direct you to -- well, let's look at
5 the next page. And is that -- do you know what Appendix H
6 of this document is?

7 A. It appears that it is PM 2.5 contributions to each
8 nonattainment county in 2010.

9 Q. If we go to the next page. Now on this page, do you
10 see EPA's modeled contributions in micrograms per meter
11 cube, from various upwind states to various downwind
12 nonattainment counties?

13 A. Yes. The units are not shown here, so. What you're
14 showing me is microgram per cubic meter of fine particle
15 mass?

16 Q. Is that what it appears to be? Are those numbers
17 consistent with microgram per meters used?

18 A. Yes, I would assume. Yes.

19 Q. So let's look at the top left corner of this document.
20 And does it appear that with regard to this document, EPA
21 had identified two nonattainment counties in the State of
22 Alabama, Jefferson and Russell?

23 A. Yes.

24 Q. And does it appear that the contributions from sources
25 in Alabama, to those nonattainment counties are

Laura Andersen, RMR 704-350-7493

1 2.2-micrograms per meter cubed, and 1.05-micrograms per
2 meter cubed, perspectivevely?

3 A. Yes. I think that's what this document is showing.

4 Q. Okay. Well, let's move on to the State of Kentucky
5 then. And it's on the same page. And does it appear that
6 there are two nonattainment counties identified for the
7 State of Kentucky?

8 A. Yes.

9 Q. Fayette and Jefferson?

10 A. Yes.

11 Q. And could you indicate for me, the contributions from
12 the State of Kentucky, to those nonattainment counties? And
13 I believe you will find those in the second column from the
14 right.

15 A. Okay. With regard to Fayette, it was 1.1-micrograms
16 per cubic meter. And then for Jefferson, that number would
17 be 0.86.

18 Q. And the last one I want to show to you, which is the
19 last page of the document here, is Tennessee.

20 And again, we have two nonattainment counties for the
21 State of Tennessee, Hamilton and Knox; is that correct?

22 A. That's true.

23 Q. And could you read for the Court, the contributions
24 from Tennessee sources, to those nonattainment counties in
25 Tennessee?

Laura Andersen, RMR 704-350-7493

1 A. For Hamilton, Tennessee sources would be .69. And in
2 Knox it would be 1.20.

3 Q. Okay. I want to talk next about your scrubbers on the
4 systems for Duke and Progress Energy.

5 I want to direct your attention to what we are marking
6 as NC 507. Which is the same thing as TVA 164.
7 (Plaintiff's Exhibit Number 507 was marked for
8 identification.)

9 MR. BERNSTEIN: With the Court's permission, can I
10 hand up this copy?

11 Okay. I would like to direct your attention to
12 the second page.

13 A. Yes.

14 Q. Does this appear to be consistent with the document
15 that you discussed earlier?

16 A. It does.

17 Q. This document doesn't include the most recent data,
18 does it?

19 A. It does not.

20 Q. And this data is actually a year and a half old, is it
21 not?

22 A. Yes.

23 Q. You've seen and are familiar with the Clean Smokestacks
24 Act Implementation Plans, correct?

25 A. I have seen, yes, the reports that have been filed.

Laura Andersen, RMR 704-350-7493

1 Q. And you know that they're submitted annually?

2 A. I do.

3 Q. And you can probably guess that there's a 2008 report?

4 A. I can.

5 Q. Have you read the 2008 report?

6 A. Not all of it.

7 Q. Okay.

8 A. Of them.

9 Q. Are you familiar with the scrubbers that have come on
10 line for Duke and Progress since 2006?

11 A. Somewhat.

12 Q. Can you tell me what they are to your knowledge?

13 A. Well, let me see. I think prior to 2006 Marshal was
14 fully scrubbed. I think Blues Creek with some of the
15 major -- I think the Blues Creek came on with some of the
16 major component of Duke's plan for further SO2 reductions.

17 Q. What about the Roxboro plant?

18 A. I know that there was plans for Roxboro.

19 Q. I want to show you what's been marked and admitted, I
20 believe, as Plaintiff's 10.

21 I would like to go to page 56 of that document.

22 Sir, does this exhibit indicate that the Roxboro
23 scrubbers at Unit 2 and 4 came on line in 2007?

24 A. All right. Roxboro's 2 and Unit 4, operation date
25 2007, yes.

Laura Andersen, RMR 704-350-7493

1 Q. And with regard to Unit 3, they indicate an operation
2 date of 2008?

3 A. Yes.

4 Q. Are you aware that Mr. Brock Nicholson testified on the
5 first day of this hearing that Roxboro Unit 3 is currently
6 now on line?

7 A. Not specific to that. But I did understand that he had
8 testified that scrubbers had come on line in North Carolina.

9 Q. Considering all the scrubbers that we just discussed
10 that are currently on line, do you know how much of Duke and
11 Progress systems are currently scrubbed?

12 A. I don't know the exact percentage. I would estimate
13 over 50 percent.

14 Q. Do you know how many megawatts are actually scrubbed?

15 A. No, I don't know that.

16 Q. Do you know roughly how big the systems are?

17 A. Yeah.

18 Q. Okay.

19 A. It would be half of their capacity.

20 Q. What is their capacity?

21 A. And that was a -- I think it was a 12,000-megawatts,
22 and that was a name plate capacity. It's easier to keep up
23 with name plate, and I assume that's what this is.

24 Q. And so how much capacity with regard to name plate
25 capacity, do Duke and Progress have scrubbed right now?

Laura Andersen, RMR 704-350-7493

1 A. Based on rough calculations, if I recall, that it
2 was -- we estimated them to have about 12,000-megawatts of
3 name plate coal-fired capacity in the state. And with this
4 data, I'm thinking they have passed the 50 percent mark. So
5 I'm thinking, you know, roughly over 6,000-megawatts
6 scrubbed.

7 Q. How many megawatts does TVA have scrubbed right now?

8 A. We have 36 percent of our system, 36 percent of 17,000
9 I can't recall the exact number.

10 Q. Is it about 6,000?

11 A. Yes.

12 Q. So is it correct to say that in the past three and a
13 half years, Duke and Progress have brought the same capacity
14 of scrubbers on line that TVA brought on line in the past 35
15 years?

16 A. Yes.

17 Q. And is it your conclusion based on this, that Duke and
18 Progress have more capacity scrubbed on their system
19 currently than TVA has?

20 A. Let me say that we're very close. They might have a
21 few hundred megawatts more. I would say they're both very
22 close.

23 Q. On a percentage basis?

24 A. On a percentage basis now, certainly we're around 36
25 and they're at 50.

Laura Andersen, RMR 704-350-7493

1 Q. So even with, I believe you testified earlier that even
2 with Bull Run coming on line later this year, TVA has, will
3 have about 43 percent scrubbed?

4 A. Yes.

5 Q. So Duke and Progress will still have more capacity
6 scrubbed on percentage basis at that time than TVA?

7 A. They will.

8 Q. And you would expect those units came on line for Duke
9 and Progress to be state of the art modern scrubbers?

10 A. That's what they've indicated.

11 Q. Based on that then, would you -- is it your
12 understanding then that the emissions rate for Duke and
13 Progress, currently today for SO2 would be less than that?

14 A. It would. It would reduce -- I would expect to see
15 lower numbers in '08 than I saw in '07.

16 Q. And with those numbers, do you expect those to be lower
17 than TVA right now?

18 A. Yes. They would be lower than what the TVA system
19 would be.

20 Q. Okay. And with regard to NOx, Duke and Progress' NOx
21 rate is lower than what TVA has right now?

22 A. And we're speaking of the annual rate?

23 Q. Annual rate.

24 A. Yes. Annual rate, yes. Their annual rate is much
25 lower than ours.

Laura Andersen, RMR 704-350-7493

1 Q. And are you aware that Duke has two SNCR's coming on
2 line this year at Allen 5 and River Bend 5?

3 A. I knew they had additional SNCR's coming on, that
4 that's prominent in their NOx strategy.

5 Q. And considering the -- with regard to summer ozone
6 season, a very slight difference in rates between the
7 systems, would you expect that those new SNCR's would make
8 Duke and Progress roughly equivalent to TVA's summer ozone
9 season?

10 A. Yes. I think in the summer ozone season, it's a fair
11 characterization to say that our NOx rates are roughly
12 equivalent. We are adding some SNCR's and so are they.

13 MR. BERNSTEIN: Just a moment.

14 We would like to move into evidence Plaintiff's
15 503, 508 and 505.

16 THE COURT: Let it be admitted.

17 (Plaintiff's Exhibit Number 502, 505, 508 having been
18 marked, were received in evidence.)

19 MR. BERNSTEIN: And Your Honor, 505 has some -- we
20 did some work with one of the exhibits on the display. What
21 I would like to hand up as 505 is the series of images that
22 were shown, with the court's permission.

23 THE COURT: All right, sir.

24 MR. BERNSTEIN: No further questions, Your Honor.

25 MS. GILLEN: No Redirect, Your Honor.

Laura Andersen, RMR 704-350-7493

1 THE COURT: All right. Thank you, Mr. Myers. You
2 may be excused. That will complete your testimony, sir.

3 THE WITNESS: Thank you, sir.

4 (Thereupon, the witness was excused.)

5 (Please turn to the following page for the next witness.)

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

Laura Andersen, RMR 704-350-7493

1 MS. GILLEN: TVA calls Gordon Park.

2 THEREUPON, GORDON PARK, being first duly sworn, testified as
3 follows during DIRECT EXAMINATION BY MS. GILLEN:

4 MS. GILLEN: Your Honor and witness and
5 plaintiffs, we will be -- excuse me. We will be referring
6 to exhibits TVA Exhibit Books 9, 10 and 11. For your
7 efficiency, you may want to get those out.

8 THE COURT: All right.

9 Q. Mr. Park, would you state your name for the Court?

10 A. My name is Gordon George Park.

11 Q. And where do you work?

12 A. I work for the Tennessee Valley Authority in
13 Chattanooga, Tennessee.

14 Q. Tell us what you do at TVA?

15 A. I'm the manager of the Environmental Compliance Section
16 for TVA for their fossil system.

17 Q. What is the fossil system comprised of?

18 A. The fossil system can consist of 11 coal-fired power
19 plants in three states.

20 Q. And what do you do in that job, what's your
21 responsibility?

22 A. I'm manager of a staff primarily has responsibility for
23 ensuring that our coal-fired plants meet all their
24 environmental requirements. We work with the plants. We
25 write procedures, do permitting, do training, review data.

Laura Andersen, RMR 704-350-7493

1 If there are any compliance issues, we work with them
2 to resolve those issues.

3 The staff consists of a total of 24 people. We also
4 have other people in the TVA that support us and outside
5 contractors.

6 The environmental program is a very comprehensive, a
7 very extensive program. The total budget for my staff is
8 about \$6 million a year. That includes not only my staff
9 but the other people that support us.

10 Q. Would you describe juror education?

11 A. I have a Bachelors and Masters degree in Mechanical
12 Engineering from University of Texas.

13 Q. Do you have any specialty in that degree?

14 A. In my Masters degree my specialties were heat transfer,
15 flue mechanics and environmental engineering.

16 Q. Did you work for the TVA immediately after receiving
17 your degrees?

18 A. Yes, I did.

19 Q. And what did you do when you first came to TVA?

20 A. Initially, I worked for the air quality branch in
21 Muscle Shoals. I was there from 1971 to 1979. I was the
22 environmental engineer.

23 Of course this was shortly after the Clean Air Act
24 Amendments of 1970. So I was involved in working with the
25 states as they developed their initial regulations, we

Laura Andersen, RMR 704-350-7493

1 prepared permits, permit applications for the facilities.
2 Worked with them to ensure they knew what the requirements
3 were, so they would meet the new requirements of the new
4 Clean Air Act Program.

5 Q. And what were those new requirements, just in a general
6 sense, in the 1970 amendments?

7 A. The 1970 amendments established standards for our
8 plants. The two pollutants that it addressed, really were
9 SO2 and particulates.

10 Q. And you say you were helping the states then had to do
11 something in the wake of 1970 amendments?

12 A. Yeah. The 1970 amendments required EPA to establish
13 the NAAQS, The National Ambient Air Quality Standards.

14 These are the standards that specify ground level of
15 pollution and what had to be met to ensure that the data,
16 the marginal safety, that there were no health or other
17 adverse effects.

18 Then it was up to the states to develop their
19 regulations and their, what we call, State Implementation
20 Plan, SIPS, that they had to submit to EPA to prove that
21 they had a program that would be adequate to meet these
22 ambient standards.

23 Shortly after I came to work at the TVA in 1971, the
24 states really were in the middle of this program to figure
25 out how to meet the ambient standards that had been recently

Laura Andersen, RMR 704-350-7493

1 approved and adopted by the EPA.

2 Q. You said you were in this position in 1979. What
3 happened in 1979?

4 A. In 1979, as the environmental requirements became more
5 and more complex, what was then the Office of Fossil and
6 Hydro Power, established their own internal environmental
7 group. And I became the manager of that, and that position
8 was in Chattanooga.

9 Q. What did that job entail?

10 A. Really it was similar type work. Again, we were
11 working with the plants. We developed our first
12 comprehensive set of procedures, so that the plants would
13 know on a day-to-day basis what was required, specified
14 their limits, how they monitored, what kind of reporting was
15 required. All those type of things. We also worked with
16 permitting, training plant people, helping them --
17 essentially whatever help they needed ensuring that they did
18 that.

19 At that time there were no -- there was not an
20 environmental staff at each of the plants. They came about
21 10 years later. So we did a lot more of the day-to-day work
22 with the plants.

23 Ten years later when the plants developed their own
24 internal staffs, then the day-to-day part of that job
25 actually moved to different facilities.

Laura Andersen, RMR 704-350-7493

1 Q. Were pollution control systems being developed at this
2 time as well?

3 A. Yes, they were. We already had some pollution control
4 equipment. Some of it by that time was at the point that it
5 needed to be upgraded and replaced. And we were also
6 installing new pollution equipment, doing a lot of research
7 on control technologies.

8 Q. How long were you in that position?

9 A. I was in that position from 1979 to 1988.

10 Q. Then what did you do in 1988?

11 A. In 1988, for about four years, I really got away from
12 air pollution control, and started working in the water
13 area. I was the manager of the water group for our
14 environmental compliance section. Essentially doing similar
15 type work what I had been doing, except really concentrating
16 just in water pollution control area.

17 Q. At some point did you move back into the air pollution
18 control part of the system?

19 A. Yes. In 1992, I really -- since I really had been
20 involved in air from the very beginning of the program from
21 the 1970 amendments, I really wanted to get back to air, so
22 in 1982 I moved back and became the Senior Air Regulatory
23 Specialist and devoted full time to that.

24 Q. What did you do as a senior air regulatory specialist?

25 A. Again, it was similar type work. Working with the

Laura Andersen, RMR 704-350-7493

1 states on regulation. Working with the plants to ensure
2 they knew what their requirements were. Providing whatever
3 technical support was needed so the plants stayed in
4 compliance.

5 Q. And from there you moved into your current position?

6 A. The next position was the manager of permitted
7 programs. From there I was a manager of a group of about
8 seven people. Essentially we had similar responsibility,
9 but not only for air, but also water pollution and hazardous
10 waste. I was in that position until 1995.

11 Q. 1995 or --

12 A. 2005. Okay. Thank you.

13 Q. Then in 2005 you moved into your current position?

14 A. That's correct.

15 Q. And I think you said the number of staff you managed.

16 But how many staff do you have in your current position?

17 A. I have 23 people administratively report to me. We
18 have about a similar number of people in other organizations
19 in the TVA that also provide support for us, plus some
20 outside contractors.

21 Q. What's the budget for your department?

22 A. A little over \$6 million a year.

23 Q. Have you written on the subject of pollution control
24 compliance?

25 A. Yes. I've written several articles and made several

Laura Andersen, RMR 704-350-7493

1 presentations.

2 In 1994 I made a couple of presentations on Title 5
3 program. Title 5 was a new permitting program that EPA was
4 in the process of developing when the states were developing
5 their regulations. It was a fairly significant change to
6 the regulatory approach to permitting.

7 Previously, some states did not have comprehensive
8 permits. So it did require comprehensive permits.

9 One of the big things there -- of course there are a
10 lot of different regulatory requirements. What the Title 5
11 program required, was that they all be put together in one
12 document. So you go to your Title 5 permit, and you could
13 see everything that the facility was required to meet.

14 Another thing that was a very important change with
15 Title 5, specified how compliance would be determined.

16 Previously some of the regulations specified how you
17 monitor and determine compliance. With Title 5 that
18 changed. As part of the permit, that was clearly specified.

19 The other major thing that the Title 5 permit did is,
20 it really shifted the burden from compliance, demonstration
21 a lot from the regulator to the source.

22 Previously, really, the regulators went in, and if they
23 saw problems, they would identify noncompliance.

24 With Title 5, the sources each year have to submit a
25 compliance certification to the regulators.

Laura Andersen, RMR 704-350-7493

1 So we have to go through each of our permits. And for
2 each one of those conditions, we have to say whether we met
3 that condition or not. And of course if not, what we would
4 do about it. So that was the other major thing.

5 So anyway, I presented several -- made several
6 presentations. One was to the Southern Section of the Air
7 and Waste Management Association in 1994.

8 And in that presentation really we were kind of looking
9 ahead primarily to these monitoring requirements. This was
10 a new thing, and there was a lot of uncertainty in terms of
11 what really would be required for sources. So the paper
12 addressed that.

13 Q. Were there other topics that you've written on or
14 presented on?

15 A. In the 1970s I presented one paper, really comparing
16 with the different regulations in the nine southeastern
17 states.

18 Earlier in seventies talked about TVA's ambient
19 monitoring. TVA did a lot of monitoring, early on of
20 requirements. We had to do a lot of data on that. So I
21 presented a paper on that.

22 Q. What regulations govern the emissions from TVA's 11
23 coal-fired power plants?

24 A. There's really -- it's really a tiered approach. There
25 are quite a few different regulations. It all starts from

Laura Andersen, RMR 704-350-7493

1 the Clean Air Act and its various amendments. Then EPA
2 develops regulations to implement what's required from the
3 Clean Air Act.

4 And from there, the states develop even more detailed
5 regulations.

6 Q. And these are all designed to comply with the Ambient
7 Air Quality Standards?

8 A. That's the basic objective of all of the regulations.
9 Some of them, such as the State Emission Limitation of
10 Regulations, they are specifically designed on a
11 plant-by-plant basis for what is necessary to meet the
12 ambient standards.

13 In addition to that, there are broader programs that
14 apply across the board to a number of sources, many states.
15 The first one of those was the Acid Rain Program that came
16 out of the Clean Air Act Amendments of 1990.

17 After that there were other programs that -- similar
18 broad programs such as the NOx SIP Call which addressed
19 ozone, or NOx emissions during the ozone season. That was
20 in late 1990s.

21 These programs, I think EPA recognized were very
22 effective. It's a very tedious time-consuming process for
23 the states to actually look at an ambient standard and
24 what's required to be emitted from each plant to ensure
25 attainment.

Laura Andersen, RMR 704-350-7493

1 So really to simplify that program, there really wasn't
2 more of this approach of broad reductions across the board.
3 Which certainly have played a major role in getting us to
4 attainment with the ambient standards.

5 Then on a case-by-case basis, the state would provide
6 and essentially tweak the standards to achieve the ultimate
7 goal.

8 Q. What did Title 4, known as the Acid Rain Program,
9 require?

10 A. It required reductions for two pollutants. It required
11 reductions for SO₂, which is a cap and trade program.

12 It also established reductions for NO_x. Those were
13 specific emission limits, in terms of rates. Pounds of NO_x
14 emitted per million BTU of heat input.

15 And there was no trading program that has to be met by
16 the company, either each individual source, or if they want
17 to they can have an averaging plan across the various units.

18 Q. And do you know how TVA chose to meet Title 4's
19 requirements?

20 A. With a cap and trade programs, utilities really have
21 two options or a combination. They can either self-comply.
22 They can reduce their emissions to meet the cap. Or they
23 can purchase allowances from other utilities.

24 TVA took the approach that we wanted to self-comply.
25 We wanted to take reductions on our own system.

Laura Andersen, RMR 704-350-7493

1 So we developed plans to implement controls, scrubbers,
2 and also reduce the sulfur content of our coal at some of
3 our plants so that we would comply entirely within the
4 system.

5 Q. And how about the NOx SIP Call, can you just explain
6 what that required?

7 A. The NOx SIP Call really is again is a cap and trade
8 program, similar to what we have for SO2. It started in
9 2004.

10 It addresses NOx emissions during the ozone season, May
11 through September. Of course the reason that it is only for
12 five months is, ozone is formed from NOx emissions, other
13 emissions in the atmosphere and sunlight.

14 So it's really an issue that mainly is a problem during
15 the warm weather during the summer. That's why the program
16 is restricted to 5-year period -- 5-month period.

17 Q. And what did TVA do in response to the NOx SIP Call?

18 A. We did several things. First of all, unlike a lot of
19 utilities, we did ultimately support the NOx SIP Call. We
20 felt like it was an important program. It was needed to
21 achieve required reductions.

22 Early on, even before the NOx SIP Call was finalized,
23 we publicly announced our plans for installing control
24 equipment to meet the requirements, that ultimately were
25 required by the NOx SIP Call.

Laura Andersen, RMR 704-350-7493

1 Q. What is PM 2.5?

2 A. PM 2.5 is a fine particulate. Initially it is an
3 ambient standard for PM 2.5.

4 The initial particulate standards were for larger
5 particles. Over the years it became clear that the ones of
6 the most concern were the small particles. They're
7 generally not emitted directly from the emission sources.

8 They're primarily the result of what is formed after
9 emission, such as SO₂ leave the power plant and react in
10 atmosphere, and then form these fine particulates.

11 Q. Has the PM 2.5 standard recently been lowered?

12 A. Yes, it has.

13 Q. From what to what?

14 A. There's both an annual and a 24-hour standard that has
15 been lowered. I don't recall the exact number.

16 Q. And how about 8-hour ozone, is that another air quality
17 standard?

18 A. That's another standard. It has recently been lowered.
19 Again, like PM 2.5, it's really a secondary pollutant that's
20 formed as a result, as I said earlier, primarily from NO_x,
21 other pollutants and sunlight.

22 Q. Are there other regulations under the Clean Air Act,
23 other than the ones we mentioned?

24 A. Yes. The other major one that utilities are impacted
25 by are regional haze visibility. There's really two

Laura Andersen, RMR 704-350-7493

1 different parts to that.

2 One is the BART requirements. B-A-R-T, Best Available
3 Retrofit Technology.

4 And these requirements potentially apply to sources of
5 events between 1962 and 1977. For TVA that really includes
6 all of our largest units.

7 These are required to be looked at on a case-by-case
8 basis to determine what controls are required.

9 In addition to those units, specific evaluations of
10 their regional haze regulations, EPA has evaluated that.
11 They determined that the ultimate goal is to get to natural
12 background by the year 2064.

13 And this is done in 10-year increments. So the first
14 step of that has to be achieved by 2018.

15 Then subsequently every 10 years, the program would be
16 reviewed again to see what additional requirements would be
17 needed.

18 Q. And were CAIR and CAMR also regulations under the Clean
19 Air Act?

20 A. Yes. CAIR and CAMR were both adopted under 2005.

21 CAIR, Clean Air Interstate Rule addresses requirements
22 for NOx.

23 Clean air Mercury Rules addresses rules for mercury.
24 These were both cap and trade programs.

25 Q. Does the fact that CAIR and CAMR have both been

Laura Andersen, RMR 704-350-7493

1 vacated, change what you know to be TVA's compliance plan?

2 A. No. As Mr. Myers indicated, TVA is still proceeding
3 with the plans.

4 The controls that we had planned even before CAMR, the
5 scrubbers and the SCRs in combination, would achieve the
6 mercury reductions, at least for the initial part of CAMR.

7 As far as CAIR, there's a lot of regulatory
8 requirements that essentially get us to the same place.

9 Really to me in looking at CAIR, is kind of -- it's
10 more of a top down, as opposed to a bottom up program with
11 regulations.

12 Programs like Regional Haze and Fine Particulate and
13 the 8-hour Ozone Standards, the states have to go through a
14 lot of work, a lot of demonstrations, modeling, to show --
15 to decide what's going to be required for each individual
16 source.

17 They have to propose regulations. Those are then
18 submitted for public comment. They go through comment
19 period, change the regulation. It's a fairly extensive
20 program.

21 CAIR really simplified this greatly by just
22 establishing across the board reductions at high level that
23 everyone has to meet.

24 Essentially without CAIR, we get to same place, it just
25 requires a lot more work for the regulators and everyone

Laura Andersen, RMR 704-350-7493

1 else.

2 Q. The regulators in the states, that what you're saying?

3 A. Yes. That's correct. Yes.

4 Q. Mr. Park, each of TVA's coal-fired plants operates
5 under a permit; is that correct?

6 A. That is correct.

7 Q. What is that called?

8 A. It's called the Title 5 Permit. Title 5 referring to
9 section of Clear Air Act that specifies this permit program.

10 MS. GILLEN: Okay. Your Honor, here's where we
11 get to the part where we mentioned in our opening statement
12 about those two thick notebooks with all of our permits.

13 Q. Mr. Park, if you could please turn to what's been
14 marked as Defendant's Exhibit 184. I think it probably
15 starts in Book Number 9.

16 A. Okay. I have it.

17 Q. Do you recognize Defendant's Exhibit 184?

18 A. Yes. This is the Title 5 Permit for our Allen plant
19 near Memphis, Tennessee.

20 Q. And that appears to be a true and accurate copy of the
21 permit?

22 A. Yes, it does.

23 Q. Okay. If you could turn to the next exhibit,
24 Defendant's Exhibit 185. What is Defendant's Exhibit 185?

25 A. 185 is the Title 5 Permit for our Bull Run fossil

Laura Andersen, RMR 704-350-7493

1 plant.

2 Q. And does that appear to be a true and accurate copy of
3 the Bull Run permit?

4 A. Yes, it does.

5 Q. And if we could turn to Defendant's Exhibit 186.

6 A. 186 is the Title 5 Permit for our Colbert fossil plant.

7 Q. And does that appear to be a true and accurate copy of
8 the Colbert permit?

9 A. Yes.

10 Q. If you could turn to Defendant's Exhibit 187. What is
11 Defendant's Exhibit 187?

12 A. This is the Title 5 Permit for our Cumberland fossil
13 plant.

14 Q. Does that appear to be a true and accurate copy of the
15 Cumberland permit?

16 A. Yes, it does.

17 Q. And Defendant's Exhibit 188?

18 A. 188 is a copy of the Title 5 Permit for our Gallatin
19 fossil plant.

20 Q. Does that appear to be a true and accurate copy of the
21 Gallatin permit?

22 A. Yes, it does.

23 Q. If you could turn to Defendant's Exhibit 189 and
24 identify that for me, please?

25 A. That's Title 5 Permit for our Kingston fossil plant.

Laura Andersen, RMR 704-350-7493

1 Q. And does that appear to be a true and accurate copy of
2 the Kingston fossil permit?

3 A. Yes, it does.

4 Q. And if you could turn to Defendant's Exhibit 190.

5 A. 190 is copy of the Title 5 Permit for our John Sevier
6 fossil plant.

7 Q. Does that appear to be a true and accurate copy of the
8 John Sevier permit?

9 A. Yes, it does.

10 Q. Almost there. Turn to Defendant's Exhibit 191.

11 A. 191 is the Title 5 Permit for our Johnsonville permit.

12 Q. Does that appear to be true and accurate copy of the
13 Johnsonville permit?

14 A. Yes, it does.

15 Q. If you could turn to Defendant's 192, Defendant's
16 Exhibit 192.

17 A. That is the Title 5 Permit for our Paradise fossil
18 plant.

19 Q. And does that appear to be a true and accurate copy of
20 the Paradise permit?

21 A. Yes, it does.

22 Q. And Defendant's Exhibit 193.

23 A. Is the Title 5 Permit for our Shawnee fossil plant.

24 Q. And does that appear to be a true and accurate copy of
25 the Shawnee permit?

Laura Andersen, RMR 704-350-7493

1 A. Yes, it does.

2 Q. And finally, if you could turn to what's been marked as
3 Defendant's Exhibit 194.

4 A. 194 is a copy of the Title 5 Permit for our Widows
5 Creek permit.

6 Q. Does that appear to be a true and accurate copy of the
7 Widows Creek plant?

8 A. Yes, it does.

9 Q. Thank you.

10 Mr. Park, are all these permits that we just went
11 through the same?

12 A. They all accomplish the same basic thing, as I said.
13 They're really --

14 Q. I'm sorry. I'm going to interrupt your answer just to
15 get a piece of business out of the way.

16 Defendant moves the admission of Defendant's Exhibit
17 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, and 194
18 into evidence?

19 THE COURT: Let those did he admitted.

20 (Defendant's Exhibit Number 184, 185, 186, 187, 188, 189,
21 190, 191, 192, 193, and 194 having been marked, were
22 received in evidence.)

23 Q. (Ms. Gillen) I'm sorry to interrupt you Mr. Park. Let
24 me repeat the question.

25 Are all those permits the same?

Laura Andersen, RMR 704-350-7493

1 A. All the permits accomplish the same basic thing. As I
2 earlier described what Title 5 program does is, in that
3 sense they all do that. They specify emission limitations,
4 they specify monitoring requirements, that sort of thing.

5 But in terms of the specific limits for each plant,
6 they are all unique.

7 Q. Let's talk about the specific -- let's just take one
8 for an example. Why don't we look at what I believe is
9 Defendant's Exhibit now admitted into evidence as 187,
10 Cumberland plant?

11 A. Okay.

12 Q. Would you just walk us through the permit in a general
13 way, just to give us an idea of what's contained in such a
14 permit?

15 A. Okay. The permit starts off with the title page. And
16 on this title page of course it indicates when it's issued,
17 when it expires. Title 5 Permits are good for a 5-year
18 period. It also identifies the specific sources at the
19 plant.

20 Of course like all our other fossil plants, the main
21 source of our coal-fired boilers here at Cumberland, we have
22 two coal-fired boilers.

23 In addition to that we have smaller sources, such as
24 auxillary boilers, coal handling, limestone handling,
25 associated with our scrubbers, those type of things.

Laura Andersen, RMR 704-350-7493

1 It identifies all the sources of -- and then of course
2 one of the most important parts of the title page, it has
3 the signature by the technical secretary of the Tennessee
4 Air Pollution Control Division. And he is the person that
5 is authorized to issue this permit.

6 It's divided into five different sections. The first
7 section gives general permit conditions. It talks about
8 things like the fact that as emission source we have to pay
9 annual fees. It talks about what can be done to open up a
10 permit, to change a permit.

11 MR. BERNSTEIN: We would ask that the witness
12 identify what page he's looking at.

13 THE WITNESS: I'm on page I, little I. The Table
14 of Contents.

15 It specifies other general things like the fact
16 that the air pollution control personnel have the right to
17 come to the plant to do inspections, to view records, those
18 sort of things.

19 Section B then gives general conditions for
20 monitoring, reporting and enforcement. It talks about the
21 various types of reports that we have to submit, the general
22 record keeping requirements.

23 On page double I, gets into more detail on permit
24 changes.

25 Section C, Section D, is the generally applicable
 Laura Andersen, RMR 704-350-7493

1 requirements that apply across the board.

2 Then Section E is really getting into the meat of
3 the permit. This is the -- Table of Contents is triple I.
4 If we go to the actual permit itself, it starts on page 15.

5 On 15 specifies in detail exactly how we go about
6 paying our emission fees, there's several different options
7 we have. This specifies that.

8 Page 17 talks about our reporting requirements.
9 We really have three different basic types. Ongoing
10 reporting is identified on 17.

11 We have our quarterly reports. Which are really
12 the data from our continuous emission monitors that we have
13 on our stacks that report SO2 for each period.

14 We then have semi-annual reports.

15 And finally we have our annual compliance
16 certification on page 18. Which is what I was talking about
17 earlier. Where at the end of each year, we have to -- for
18 each of these conditions in this entire permit, we have to
19 certify to Tennessee how we determined whether we were in
20 compliance, and whether we were in compliance. So that's a
21 very important part.

22 Page 19 then really gets into the specific
23 emission standards on a source-by-source basis.

24 The first one starting on page 19 is for the two
25 coal-fired boilers. There's some general language that

Laura Andersen, RMR 704-350-7493

1 talks description about how large the source is. What kind
2 of fuels are permitted to burn. Specifies our emission
3 standards. We have our emission standards for particulate.
4 Then after that we have our standard for SO2.

5 Of course, along with that it specifies our
6 compliance method. How we demonstrate that we are in fact
7 in compliance with those terms.

8 I won't go through every page, but we have similar
9 type of things for all the other sources, for our auxillary
10 boilers, for our coal handling, limestone. Each of the
11 emission points spells out in detail what is our emission
12 standard. How we determine we are in compliance.

13 Then there's a number of attachments. The actual
14 permit goes through page 31. After that there's a number of
15 attachments. And A lot of these are things that come
16 straight out of our permit application, supporting
17 information. How we calculate what our emissions are.

18 The first attachment is about three pages long.
19 The second one is about four or five pages. And then you
20 get to Attachment 3, which is one of the more important
21 attachments, because this is the copy of the Acid Rain
22 Permit for Cumberland.

23 So the State has incorporated in here our Acid
24 Rain Permit, which of course, specifies our requirements
25 both with respect to SO2 and NOx.

Laura Andersen, RMR 704-350-7493

1 After that there there's a number of pages, like I
2 said, providing more detail of the emission calculations.
3 Then later on there's a section on applicable regulations.

4 One of the things that we had to do in our permit
5 application, and one of the things the State has to review
6 before they issue a permit is, we have to look at all the
7 regulations that potentially could apply to Cumberland
8 fossil plant.

9 So there's about half inch thick part of this
10 permit goes through that in detail, condition-by-condition,
11 whether it applies, if it does apply, why it does apply.

12 And finally towards the end of the permit there's
13 Attachment 9. I'm sorry, these are not numbered
14 sequentially so it's a little bit hard to find. Getting
15 close to the end.

16 This is the NOx budget permit for Cumberland.
17 This is the permit that specifies the requirements under NOx
18 SIP Call.

19 And then at the very end is what's called Addendum to
20 Cumberland Permit. That's about six or seven pages from the
21 end of this section.

22 And this is the permit that was issued later for BART
23 requirements, as I talked about earlier. Under the Regional
24 Haze Requirements we have to look at on a case-by-case
25 basis. And propose what are the requirements for BART, work

Laura Andersen, RMR 704-350-7493

1 with the regulators to finalize that. And this is permit
2 that establishes that.

3 The basic SO2 standard for Cumberland is 5 pounds of
4 SO2 per million BTU input.

5 In order to meet the Regional Haze Requirements,
6 Tennessee looked at that and determined that we needed a
7 more stringent requirement.

8 And they accomplished that through BART permit where
9 they specified a standard of a tenth of that, .5 pounds per
10 million on a 30-day average.

11 So that's what's in the Title 5 Permit.

12 Q. So Cumberland is subjected to two SO2 limits, is that
13 correct, or is the second one in place of the first?

14 A. No. We're really still subject to two. The first
15 5 pound per million BTU, 24-hour standard, that was from the
16 original state implementation plan that was needed to meet
17 the Ambient Air Quality Standards for SO2.

18 Q. Does Cumberland emit that rate?

19 A. No. Cumberland, as Mr. Meyers indicated emits much,
20 much lower than that. We have a scrubber. Our emission
21 rate is down around .2 pounds per million.

22 But that standard -- we still have to have that in
23 place just to ensure that the ambient standards are met and
24 we're well prepared.

25 In addition to that we have the BART standard at .5

Laura Andersen, RMR 704-350-7493

1 pounds per million BTU.

2 Q. Thank you, Mr. Park.

3 Moving away from the permits now.

4 Would you describe how TVA's compliance program is
5 organized?

6 A. It really, the program -- we have various levels of our
7 program. Starting at the plant level, one thing I like to
8 say is, our program is -- it's just like our safety program.
9 Everybody at the facility has a part of the program.

10 They either can make the program work, or make the
11 program not work.

12 So we really stress the importance of everyone at the
13 facility being involved in the program, knowing what's
14 important, doing their job every day correctly so that we
15 stay in compliance.

16 We have a small staff of several people. At each of
17 the plants that handle requirement compliance, it's a full
18 time job for these people. They handle all of the
19 day-to-day issues. They handle the reporting, data
20 collection. They work with all the other people at the
21 plant on training, to be sure everyone knows what needs to
22 be done those sort of things.

23 And then the next level up really is my staff.

24 The environmental requirements are so complicated, that
25 it's really not -- I don't think there's anyone really can

Laura Andersen, RMR 704-350-7493

1 fully understand the details of all the regulations. So we
2 have people that really specialize in each of the areas.

3 For instance, of the 23 people that work for me, three
4 of them concentrate on air pollution control requirements.
5 We have three people that concentrate on water pollution
6 control, so forth.

7 Even within those three people for air, those three
8 have different areas that they concentrate on.

9 So we have really the super experts in TVA on all the
10 environmental requirements are working for me.

11 So if they're particularly complicated issues that are
12 involved at the plants, we can help them out. We really
13 look at bigger picture things. We look at system-wide
14 issues. We establish goals and targets for them, so they
15 can perform as good as possible, those type of things.

16 Then we also, even above that we have the other layer,
17 the TVA corporate layer. This is the group that Mr. Meyers
18 works for. And they're involved with the TVA-wide on all
19 environment requirements.

20 In addition to the types of things that he talked about
21 in his testimony, they also have an audit staff. They come
22 to our facilities periodically, both announced and on an
23 unannounced basis to do inspections, and do a detailed audit
24 to ensure that we are in compliance. If they identify
25 anything wrong, they write up a report and we take

Laura Andersen, RMR 704-350-7493

1 corrective action.

2 Q. Mr. Park, what is a Notice of Violation, N-O-V?

3 A. A Notice of Violation is issued by a regulator. That's
4 when they suspect that there's a possibility that there has
5 been a deviation with the standard.

6 So essentially it's their written documentation to
7 notify us that -- of an alleged violation.

8 So then what happens once we get an N-O-V is first
9 thing, obviously we look at figure out what's going on, what
10 they accused us of doing.

11 We get the facts together. We find out if in fact
12 there's a real problem. If there's not a real problem,
13 we'll talk to the regulator. We have a very open working
14 relationship with the State. We don't try to hide anything.
15 So we go talk to them about it.

16 If we all agree that yeah, there was a problem, then of
17 course we have been trying to figure out what we need to do
18 to fix it. Obviously we don't want these problems to
19 continue.

20 So we identify the corrective action. Work with the
21 State to be sure they are satisfied that we are planning to
22 take the appropriate corrective action.

23 Sometimes that can be done fairly simply and it's over
24 at that point. Sometimes they could issue a penalty, or we
25 enter into a more formal agreement with them to resolve the

Laura Andersen, RMR 704-350-7493

1 issues.

2 Q. Does TVA achieve perfect compliance with all it's
3 regulatory regulations for coal-fired power plants?

4 A. No. Like any other emission source, we have a program
5 in place. We have the equipment that's designed and
6 maintained to meet the required standards.

7 We have procedures in place to ensure that we operate
8 properly. And we have trained personnel to be sure they do
9 the right thing.

10 However, everybody makes mistakes. Occasionally a
11 person will make a mistake. No equipment is perfect,
12 occasionally it will break down.

13 Occasionally something goes wrong and there can be a
14 condition that's not consistent with the required standard.

15 Q. What's TVA's reaction when that happens?

16 A. Our reaction is, of course we work with the regulator.
17 We let them know what happened. We immediately try -- we
18 immediately figure out what happened, what the root cause of
19 the problem was.

20 And we put something in place, either modifications to
21 the equipment, or changes in procedure, or better training,
22 or whatever is needed, so that we can keep that from
23 happening in the future.

24 Q. Were you involved in the TVA response to EPA's
25 allegations that some TVA plants violated the New Source

Laura Andersen, RMR 704-350-7493

1 Review Part of the Clear Air Act?

2 A. Yes, I was.

3 Q. As a TVA person --

4 THE COURT: I think we will take a break.

5 MS. GILLEN: I have about three more questions,
6 Your Honor, and then we can pass the witness.

7 THE COURT: Oh okay. Let's finish.

8 MS. GILLEN: Okay.

9 THE COURT: Go right.

10 Q. (Ms. Gillen) As the TVA person in charge of compliance
11 with air quality laws, what is your understanding of
12 those -- what is your understanding of whether TVA has
13 violated New Source Review?

14 A. There have been a number of different lawsuits. And in
15 TVA's case, there has not been any final legal determination
16 that TVA violated any of the New Source Review requirements.

17 Q. Does TVA comply with its NOx emission limits?

18 A. Yes. We have NOx emission limits under the Acid Rain
19 Program. We also have a few plant specific NOx emission
20 limits for other reasons. And we comply with all of those.

21 Q. Does TVA comply with its SO2 emission limits?

22 A. Yes. We comply with the SO2 limits under the Acid Rain
23 Program.

24 I guess one aspect of both the Acid Rain Program and
25 the SIP Call, EPA established it with very punitive

Laura Andersen, RMR 704-350-7493

1 penalties for not complying.

2 So we have a very strong motivation to comply, you
3 almost have to comply. We will do whatever is required.

4 We've never -- we've always met requirements both SIP
5 Call for NOx and for SO2.

6 We did -- on SO2, the last time, as far as the State
7 emission limit we exceeded an SO2 standard, was in the early
8 1990s.

9 Q. That would be the SO2 permit limits?

10 A. That's the SO2 permit limits, yes. It was exceeded at
11 one of our plants, I believe around 1992.

12 When that occurred, we put additional things in place
13 to ensure that that would not occur again.

14 Obviously we were very successful, because that's the
15 last time we've had any exceedances of our State permit
16 limits of SO2.

17 Q. Since 1992?

18 A. Since 1992.

19 MS. GILLEN: Thank you, Mr. Park.

20 No further questions, Your Honor.

21 THE COURT: Mr. Park, we're going to take our noon
22 break. And we will ask you to be back with us at 2:15.

23 THE WITNESS: Thank you.

24 (A lunch recess was taken in the proceedings.)

25 * * * * *

Laura Andersen, RMR 704-350-7493

1 UNITED STATES DISTRICT COURT
2 WESTERN DISTRICT OF NORTH CAROLINA
3 CERTIFICATE OF REPORTER
4
5

6 I, Laura Andersen, Official Court Reporter,
7 certify that the foregoing transcript is a true and correct
8 transcript of the proceedings taken and transcribed by me.
9

10 Dated this the 24th day of July, 2008.
11
12

13 s/Laura Andersen
14 Laura Andersen, RMR
15
16
17
18
19
20
21
22
23
24
25

Laura Andersen, RMR 704-350-7493